This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at http://books.google.com/

NO 1267

THE

Dental Office and Laboratory

FOURTH SERIES

VOL. XIX. PHILADELPHIA, JANUARY, 1905. No. 1.

NON-COHESIVE GOLD FOR "STOPPING" TEETH.

After forty years of use of this material I work along the lines of stopping teeth rather than filling them. Anything may fill a cavity, but there are very few materials that will make a perfect stopping. This material will do as good work, and makes a perfect stopping for the present and for the future. Now, a perfect stopping is one that will prevent leakage from either within or without. We stop a bottle to keep the contents from leaking out, and we stop a tooth to keep anything from leaking in. A perfect stopping must be softer than the thing stopped, and a perfect stopping is something absolute; if not absolute it is not perfect. For instance, a rubber tire may be perfect in every respect except that at one place there may be a little puncture, but that one little hole will let the air out, so the tire is not perfect. You may as well have a dozen holes, so far as keeping the air in the tire is concerned. A pair of rubber boots with one little hole lets the water in and fails to serve the purpose; in fact, you had better have a half-dozen holes, then the water will be able to get out, but with one hole it lets the water in and it cannot get out. I have here a bottle of alcohol with a ground-glass stopper; when I put in the stopper and turn it, I can turn to a certain point and no farther. The bottle is stopped, or not; now, you must admit that it cannot be made tighter if it be not stopped at this point.

Here is a bottle containing alcohol, for which I have a cork stopper. I put in this stopper and turn until I know it is tight. If it be not tight I can turn until it is tight, and can always make it tighter; and it is easy to see that this reserve in the cork stopper makes it better for stopping the bottle than the ground-glass stopper which has no reserve. Now, it is this reserve in non-cohesive gold filling which makes it serviceable in saving teeth.

WEDGED IN PLACE.

What is non-cohesive gold? It is a foil made into leaves which when pressed together will not stick; they will lie close together, making a solid soft mass. Now, soft is a term which is applied to both cohesive and non-cohesive gold, and it is this quality which makes it advantageous in our work. The softer the gold is, the more adaptable it is to the cavity. The principle of working non-cohesive gold is the wedging principle. The principle of working cohesive gold is the welding—the sheets lie on each other; but the principle of working non-cohesive is that each pellet stands upright, so that when the filling is finished the surface presents edges rather than flat surfaces. The same condition applies at the base of the cavity.

LIKE AN ARCH.

When there is a defect in this filling material you can continue to force in these pellets until you know that it is absolutely tight, but in the case of the cohesive gold, where the sheets are welded to each other, the little defects are covered up and there is no way of remedying them. The point is that the first piece must not move from its place, and when you put in two, three, or four pieces, they must be parallel to the walls of the cavity so that the last piece makes the keystone of the arch. Now, that filling cannot be moved out of the tooth unless you pull out one of the cones, any more than you can destroy the arch of a bridge unless you pull out one of the stones. If you take one stone out the arch will drop, and this is the structure of the non-cohesive gold filling. Cohesive gold is worked the other way; one piece is put in and the next piece is welded to it, and so on until the last layer covers the entire filling, and the layers are perpendicular to the walls of the cavity from the bottom up. When you get to this point, if your filling be not perfect, it can never be made so, but in the case of the non-cohesive, the layers being parallel to the walls, if the filling be not perfect you can by the wedging process make the filling absolutely tight, and you have presenting the edges of the gold, on which the action of the burnisher produces a perfect adaptation. I know that cohesive gold is necessary in a great deal of our work. It is impossible to work without it. It appeals to a great many operators for this reason: it works itself. That is to say, there is no great amount of skill necessary to keep the pellets in position; after you get one to stay, you can continue. When most young operators fail to make a success with cohesive gold, they order gold that is more cohesive.

TIGHT AT MARGINS.

Now take the two fillings when finished. With the cohesive gold, the filling is hard; the more cohesive the gold the harder is the filling. When you get the non-cohesive filling in, it is soft. One filling is practically a gold plate, and the other is gold foil. You can take the cohesive gold filling out of the tooth and it is practically a gold ingot; but take the non-cohesive filling out, and it can be picked to pieces. You have not destroyed the qualities of the gold. It is a foil filling when finished. It is like the cork stopper in the bottle; the harder it is pressed upon, the tighter it will get. There is one place in filling a tooth that must be made tight, and that is at the marginal walls. If it be imperfect at that point, your filling is no good; there is a leakage, an opportunity for the bacteria to get in and do their work. With the non-cohesive foil, that is the one locality that you can be absolutely sure of having perfectly tight, and if that one place be tight it does not matter so much about the inside of the cavity; it will keep the bacteria out. * * *

WILL COMBINE.

Another advantage of this material is that you can combine it with cohesive gold. I have made tests within a short time as to the strength of the two when combined. As an extreme test, I have taken a cavity on the grinding surface of a molar and filled it with non-cohesive gold; then I have worked cohesive gold on this, and in testing the attachment of the two I have never been able to separate them. I have been able to pull the soft gold filling out, but a separation between the two I have never been able to obtain. * * *

CAN BE FINISHED.

One grand test of a perfect filling: A perfect filling is one that you can finish up. Did you ever think of that? Take a poor filling, and the longer the operator works, the worse it looks. If a man makes a poor filling, the thing to do is to let it alone. Another test of the two materials is that the poor non-cohesive filling is better than a poor cohesive filling. Take two men who do not know how to fill teeth with any material, and the man who puts in non-cohesive gold will save more teeth than the man who uses cohesive gold. That shows the merit of the material.

A Good Percentage.

Last summer I had one of my patients in my office, and in looking over her mouth I found fillings that had been there fifteen, twenty and twenty-five years, looking as beautiful as when the work was first done. Last month one of my patients died for whom I had worked thirty-eight years, and she had never lost a tooth, and practically never lost a filling. Gentlemen, I am not egotistic in citing these cases; I am simply zealous in my advocacy of this material. To be sure, I had good teeth to start with, but relatively one has the same results in poorer teeth. Difference in the teeth makes a difference in the durability of the work. To give you an idea of the percentage of work that I do, I was looking over my book for the year 1874, and found that during that year I put in six bone fillings, 50 tin, 53 gutta percha, 118 amalgam, and 671 gold; that made a percentage of seventy-five per cent., which I think is a pretty high percentage of gold work.

Some beautiful workers in cohesive gold get excellent results —save teeth for almost as long as they could with non-cohesive gold. The principal merit of cohesive, however, is in cases where there is practically no tooth to save. The larger the cavity and the more broken down, the nearer the cervical margin under the gum, the longer the cohesive work seems to last. We have in our state many beautiful cohesive gold operators. I have seen their patients and viewed the results with admiration, but these men are artists, and they know the weakness of the material. In using cohesive gold, if the operator condenses the gold before he gets it to the walls of the cavity, he makes a mistake. An expert in this work does not condense his gold until he gets it to the place where he wants condensation. In the case of non-cohesive gold, if you happen to get the gold in the wrong place you can move it, and have not destroyed the quality of the gold; but, in the use of cohesive, if any pressure is brought to bear before you get it to the place you want it, the filling is of no value.—Dr. C. H. Gerrish, *Cosmos.*

FATIGUE AND SLEEP.

It has long been known that nerve-cells are peculiarly sensitive to varying conditions of the system, especially blood-changes. Within a few years it has been found that they contain little angular bodies that stain deeply with aniline dyes, particularly methylene blue. On account of this property these have been called chromophile granules, or, after their discoverer, Nissl bodies. Although but recently described for the first time (1902), the literature of these bodies is now enormous, and various theories have been advanced to account for the changes to which they are subject. One theory, which has many supporters, is that the Nissl bodies represent or contain stored up energy, and that they undergo disintegration as the result of cell-activity. It is the fact, indeed, that, following massive discharges of nerve impulses, such as occur in the violent convulsions of epilepsy, these bodies break down into exceedingly fine granules, but are restored by a proper period of rest. * * *

As a result of wakefulness with mental and physical work, the active tissues—especially nerve-centres, nerves and muscles—produce something that circulates in the blood and gives a sense of fatigue and drowsiness. While the system is in this condition the nerve-cells are irregular in form and shrunken, the nuclei are even more shrunken and deformed, and some parts of the cell substance have disappeared, leaving empty cavities. The stored up nervous energy contained in the chromophile bodies has become impaired by use, and these bodies are more or less disintegrated. This is fatigue; and under favorable conditions sleep follows.

The immediate cause of sleep is diminished circulation of blood in the brain. During natural sleep the nerve-cells are gradually restored to their normal condition, as well as the nuclei, and Nissl's granules resume their normal appearance, storing up new energy. By these processes the cells return to a condition suitable for renewed activity.—DR. AUSTIN FLINT, *The Sun.*

THE HABIT OF WASTING TIME.

If one's fee is six dollars per hour, his minutes are worth just ten cents each. Imagine a poor man sitting on a cracker barrel in a country store throwing a ten cent piece out of the window every minute, and you have a forcible illustration of the dentist whose fee is six dollars per hour and upward, when he wastes his time. I am not familiar with your habits in this town, but in the one whence I came many dentists have no time to read the dental journals, yet they will squander more time every day in reading the details of the latest social scandal, murder trial, or other trash than would suffice to read any one of the dental journals. Were the average man to be impressed with the fact that half an hour spent each day in this useless reading would in the course of a year run away with eighteen days of eight hours each, he would, I think, put his time to better use. Many of this class would not think they could possibly take a three weeks' vacation.

Since the dentist must, with his own brain and hand, do almost everything that is done in his office, it is of the utmost importance that he shall make every minute count for its full value. He must certainly, as soon as he can possibly afford it, employ some one to do the little things about the office. It is the habit of some excellent practitioners to take time for which they are charging their patients ten or twelve dollars an hour, and use that time in folding, rolling, and cutting gold, rolling up paper pellets, and such like work, when a girl, for five dollars a week, can do it as well.

A little thing worth attention is the time lost between patients. It is absolutely impossible to tell just how long a given operation will take; therefore it is best to make appointments for one hour, one and a half, or two hours each, always saying to the patient that the next sitting will be for one of these stated periods. * * *

The appointment having been made for, say, one and one-half hours, it is well at once to proceed with the preparation of a cavity or other piece of work that can surely be done in that time. This will usually leave a few minutes before the next patient. These minutes can almost invariably be used to benefit to the patient in removing calculus or in polishing the teeth. At the next sitting the same course is pursued, so that by the time we have the fillings all made we have the teeth cleaned and polished or so nearly finished that we can judge very closely as to how much time will be required for its accomplishment.

Had we spent two hours at the first sitting in cleansing and polishing, we could not conscientiously have made all our appointments come out evenly.

By this method we have practically saved the time required for this work, which is no small item.—DR. F. M. SMITH, *International.*

THE OUTWARD STRANGENESS OF JAPAN.

In his *Japan*, Lafcadio Herne touches upon the oppositeness of nearly everything that the Oriental sees or comes in contact with. Visitors at world's fairs have seen the natives of Japan, and of other countries of the Orient, handle tools, and most skillfully, but in a way that would render them practically useless to those rightly trained. To such especially the following extract from Herne's "Interpretation" will prove timely and interesting:

"You will soon observe that even the physical actions of the people are unfamiliar,—that their work is done in ways the opposite of Western ways. Tools are of surprising shapes, and are handled after surprising methods: the blacksmith squats at his anvil, wielding a hammer such as no Western smith could use without long practice; the carpenter pulls, instead of pushing, his extraordinary plane and saw. Always the left is the right side, and the right side the wrong; and keys must be turned, to open or close a lock, in what we are accustomed to think the wrong direction. Mr. Percival Lowell has truthfully observed that the Japanese speak backwards, read backwards, write backwards,—and that this is 'only the a b c of their contrariety.' For the habit of writing backwards there are obvious evolutional reasons; and the requirements of Japanese calligraphy sufficiently explain why the artist pushes his brush or pencil instead of pulling it. But why, instead of putting the thread through the eye of the needle, should the Japanese maiden slip the eye of the needle over the point of the thread? Perhaps the most remarkable, out of a hundred possible examples of antipodal action, is furnished by the Japanese art of fencing. The swordsman, delivering the blow with both hands, does not pull the blade towards him in the moment of striking, but pushes it from him. He uses it, indeed, as other Asiatics do, not on the principle of the wedge, but of the saw; yet there is a pushing motion in the stroke."

CONVICTIONS UPSET—THE ALKALINE WASH MUST GO.

We may have previsions as to what certain chemicals will do under given circumstances, but in treating living bodies the mysterious physiological influence governing them seem to be ignored in many instances of practice. We, like our older brothers in medicine, through our knowledge of chemistry have been treating our patients sometimes as though their bodies were passive vessels, like inert test tubes or porcelain dishes, without control in the supply or disposition of their own contained substances.

The observant physician knows the effects of certain drugs on the physiological functions of the animal. He knows, for instance, that alkalies retard the action of those glands which normally secrete an alkaline fluid, and that they increase the output of those glands whose function is to secrete an acid. Notwithstanding this physiological evidence, known for many years, we still persist in the practice of treating excessive acidity, local and systemic, as in the mouth, stomach and other organs, with alkalies, which dosing of course neutralizes the acidity for the time being ; but at the same time, in accordance with the rules of supply and demand and nature's desire for equalization, the after-effects witness the stimulation of those acid-supplying glands to greater effort, and the disease continues.

Some of you may consider our objection to alkaline treatment in cases of acidity as irrelevant because the acid in question is perhaps not always supplied by the glands, and may come through fermentation of extraneous contents, but even if we grant this proposition as probable, we can assert that an alkali is contraindicated because it preserves the activity of the acid-forming microorganisms by neutralizing the product, which to them is a malignant poison.

Now let us consider our own domain and ask in all candor, in the light of these physiological facts, if we are justified in continuing this ancient, purely chemical, practice of recommending alkaline washes for the mouth and tooth powders as an adjuvant to cleanliness in preventing dental caries? At the risk of being accused of posing as an iconoclast, the writer ventures to answer, No—that while it is a chemically correct deduction, from the fact that an acid is the immediate cause of solution of continuity in the part, it is not so physiologically. It may be correct treatment in free acidity of the mouth, inducing erosion of the teeth, but surely not for dental caries.

Caries is a disease of restricted progressive solution of tooth substance by, according to Miller's proof, nascent lactic acid developed at the point involved. Lactic acid is a virulent poison to the ferments that produce it, and in caries this poison is at once rendered inert by forming calcium lactate at the expense of the tooth, so if we supply an alkali to the part we preserve the lives of the microorganisms through the destruction of the redundant free molecules of the acid, thus helping them to continue their work on the carbohydrates that may be present.

PROPHYLACTIC PHILOSOPHY UNPHYSIOLOGICAL.

Acids are incompatible with the welfare of acid-forming bacteria, hence our prophylactic philosophy, based on purely chemical laws, is evidently unphysiological, for our locally applied alkali destroys that which otherwise would destroy these ferments. In the manufacture of lactic acid on a large scale by supplying a culture of lactic ferment to glucose obtained from corn starch, lime is added to the fermenting mass in order to take up its equivalent of acid, that the lives of the ferments may be preserved and their multiplication and activity be promoted until all the material is properly disposed of.

Do mere mercenary manufacturers of lactic acid know more of this phase of dental prophylaxis than we of the profession do? It seems so. They know how to secure the safety of their invaluable microorganisms from danger and death, and we, for a different reason, follow exactly the same lines—in our case just the reverse from what it ought to be, for surely the preservation of one of the necessary factors in lactic formation is emphatically not the object of our treatment.

Immunity from disease is perhaps the leading question in the world of therapeutics to-day, and in our department activity in this direction has been shown by the efforts of Miller, Black, Michaels, Kirk, D. D. Smith, Williams, Bryan, Wright and many other shining lights in our profession, each adopting or suggesting some special theories and methods agreeable to the views they severally entertain in regard to the cases with which they deal.

Local conditions may be of minor importance in the estimation of many good thinkers on the subject, but nevertheless, when we do prescribe local remedies we should do so with the certainty of doing good rather than harm. An inert, mild abrasive, like fine pumice, might fill the duty as a substitute for alkaline powders, and meantime, somewhere in the future, some really effective means may be discovered and be proven able to inhibit *all* the factors involved in the cause and the propagation of dental caries.

The writer feels keenly the outrage committed by this paper against apparently scientific laws, and timidly asks himself, "Is it worth while" to thus oppose the settled convictions of a thousand years? However, it is the bounden duty of everyone who thinks he "Sees a hand we cannot see, and hears a voice we cannot hear," to enlighten us, so that we too may see and hear as well as he. This is what we are here for, with our minds alert and our mental attitudes so adjusted that disbursive and receptive moods are equally in touch with the wish to give and receive, and may the truth prevail.—DR. J. S. CASSIDY, *Digest*.

DANGEROUS TO BE SAFE.

There is danger in being alive these days. If you bathe you are liable to get pneumonia or weaken the constitution. If you don't bathe you will not be able to eliminate the poison from your system that accumulates daily and must be thrown off in some way. Drink beer or water and get typhoid fever. Drink milk and get tuberculosis. Drink whiskey, get jim jams or snakes. Eat soup, get Bright's disease; eat meat, get apoplexy; eat oysters and acquire toxemia; eat vegetable diet and deteriorate or run down the general system. Smoke cigarettes and go crazy. Smoke cigars or a pipe and get a cancer. Drink coffee or tea and get nervous prostration. Drink high wines and get the gout. Now, the only way to be perfectly healthy is to eat nothing, drink nothing, smoke nothing. Try it for about six months and then let's hear from you.—DR. I. F. STEELE, *American*.

THE TACTFUL DENTIST.

A good, prosperous—tactful, of course, if prosperous—dentist will have his automobile. Running someone down with his devil-wagon gets his name in the papers. Get your name in the papers. If you don't there may be about 2,000,000 people who may never hear of you.

If you can't buy or rent an auto, get an auto cap anyway and wear that. Of course, when anyone asks where your machine is, yours has to be in fashion and it is in the hospital. It may never get out, but the idea is a tactful one, if not strictly business—real business.

It is tactful to show a large roll of bills when you pay anything, especially when you buy. If you have fifty dollars get it all in one's except a $10.00 or $20.00 wrapper—then flash it, but look out for hold-ups.

Every dentist ought to go out on a vacation for two or three weeks, because everyone asks, "Where are you going this summer?" and, of course, you're going, but you don't know where—'round the corner, perhaps, but you are going; because when you get back you want to send greetings to all your patients and some others, and announce your return, rested and recuperated and ready for action.

When asked where you've been, there's where you have to use tact of the finest kind—that is, be evasive, for to name a place may be to put your foot in it. Well, to put your foot in it only you can't tell much about it, and you might hear: "You were? Why, we were there; but didn't see you. Why, how could that be?" Well, yes, how *could* it be? It is up to you. Fall back on your tact. Pull a tooth or do something to change the subject and ever after tack to the truth.—DR. R. B. TULLER, *American.*

THE SPALDING JACKET CROWN.

In order to describe intelligibly of Dr. Spalding's procedure, we will assume that we are dealing with a deformed superior cuspid tooth, with either living or dead pulp, but with such defects of development as to call for treatment of some kind. The first step is to take a wire measurement of the circumference of the tooth at the gum margin. The second is to give the crown of the tooth a conical shape from the gum margin to the occlusal end, to give it a distinct shoulder at or just under the gum margin, and to shorten it. This Dr. Spalding accomplishes with rather thin three-quarter-inch disks of carborundum for the broad surfaces, and finishes with small inverted cone carborundum points, mounted for both hand-pieces, at the angles resulting from the use of the larger disk.

The third step is to cut a piece of matrix platinum in the shape of a trapezoid, with its base line the same length as the wire measurement in the first step.

Fourth, unite the edges of this piece with a minimum quantity of pure gold, forming a truncated cone-shape. Slip this over the tooth, making sure that its edge goes above the shoulder left at the gum margin, and with the dentimeter twist a soft wire ligature around the matrix just below the shoulder, and with suitable pliers begin to draw the surplus platinum to the mesial and distal sides in two flattened wings, and also over the end of the tooth. Clip off most of the surplus at the end, leaving a little for a handle till the fitting is nearly done, and fold over the surplus at the sides, cutting off part of it first if there is much excess. Burnish the matrix accurately and smoothly to the tooth. Dr. Spalding uses for this work a bone instrument. It is a valuable instrument, and my use of it convinces me that a bone or ivory burnisher will be very helpful in inlay matrix formation. The feel of the bone instrument as it passes over the platinum is a distinct relief as compared with the drag of a steel instrument.

Fifth, select a rubber tooth of suitable color and shape, and with carborundum stones cut it to the shape of the sample facing shown. Note that the tip is hollowed out and the shoulder and enamel surface of the palatal side of the tip is left intact. This is accomplished by using the same small carborundum stone used for finishing the shaping of the teeth. This shoulder is a very important aid in the further work.

Sixth, wax this to the matrix, with latter in correct position on the tooth, using gutta-percha and wax mixture; remove carefully; grip with suitable pliers, one jaw of which passes inside the matrix and the other engages a corresponding point on the labial surface of the facing. Remove the wax and place "block body" on one side near the tip and jar it carefully through till it appears on the other side, then build it round the top of the cone and, setting on end in the furnace, fuse the body. It is essential that the body for this first bake be kept away from the shoulder in the matrix. This block body Dr. Spalding makes by grinding up in the mortar pinless teeth of the same make as the facing he uses.

Seventh, place the piece in position on the tooth and carefully perfect the fit of the matrix at the shoulder.

Eighth, apply body, carve, and fuse to finish.

Ninth, remove the matrix and set in suitable cement.—DR. H. W. GILLETT, *International*.

SEPARATION BY SLOW METHOD — COTTON OR GUTTA-PERCHA.

Except in rare cases, where the reason is lack of time on part of patient—for lack of time on your part is never an excuse for inflicting unnecessary pain on patients—I practice separation by the slow method, and as a rule use cotton. It is my aim, where a number of approximal cavities exist in a mouth, to keep two or more in different stages of separation, thus not losing any time for patient or self; if there are proximal cavities in bicuspids or molars which probably will not be filled for a week or more, they are opened into, portion of decay removed and packed with warm gutta-percha; the stress of mastication does the rest, and in one week or two or three my space is obtained, and in the interval the patient has the satisfaction of masticating on a surface hard enough to bear a reasonable strain, and at the same time not have cavity filled with decomposed tissue and organic matter. If more rapid separation is desired, the cavity is tightly packed with cotton slightly saturated with some essential oil, and the occluding surface coated with sandarac varnish to give a hard surface and help retention of cotton. Twenty-four to forty-eight hours is sufficient to obtain ample space. Some claim this system will result in a sore tooth, too sore for the malleting of a gold filling; in some cases it will, under these circumstances, or if for any other reason the operation is not to be performed at this time, remove cotton and fill with gutta-percha to retain space acquired, and in twenty-four hours all inflammation has subsided. If you have looked ahead in laying out your work, this soreness need not result in any loss of time.

In the anterior teeth, cotton should always be used, as no stress of mastication appears at this point to crowd gutta-percha. If cavity is a large approximal one, cotton is tightly packed and coated with sandarac; if small, where lingual or labial wall is not to be cut away to any extent, before wedging with cotton place a silk ligature between teeth at interproximal space, wedge with cotton, bring ends of thread between teeth at incisal portion and tie. This will insure retention of cotton in these cavities the same as posterior. If for any reason they are not to be filled at set time, remove cotton and insert gutta-percha to retain space.

From experience in my own mouth and the expressions of gratitude from my patients, when they learn why the cotton or gutta-percha is used in place of the metal separator, I am convinced the slow method is the only one to use, except when it is absolutely unavoidable; and if you look ahead at time of examination, it is indeed rare when you are justified in using any other. It is a rare thing for any of us to fill teeth for a patient without a preliminary examination, and if at this time we find there is only sufficient work for one appointment and this consists of approximal cavities, then is the time to begin your separation.—Dr. J. P. Root, *Western*.

DIATORIC TEETH IN BRIDGE-WORK.

Using a bicuspid diatoric tooth for purposes of illustration, the procedure is as follows: The teeth are carefully selected to fit the case with as little grinding as possible. The form in which they are made, with a long curve on the inner surface, permits the cervico-lingual surface to fit the curve of the average ridge, with little or no grinding, but if any grinding is necessary, it should be done on the base of the tooth, rather than on the morsal surface. A piece of pure gold plate about 32-gauge is cut to a size sufficient to cover the base of the tooth and project over the sides about one-eighth of an inch. This is laid on the base of the tooth and burnished to fit as nearly as possible, the edges being turned up all around to form a cup-like shape. A metal ring, which will fit in a crown swager, is filled with hot modeling composition, and the morsal surface of the diatoric tooth is pressed into it to a sufficient depth to hold it firmly, and the whole plunged into cold water, to harden the composition. With the piece of gold in position on the imbedded tooth, they are placed in the swager and covered with corn meal or some equally yielding substance, and swaged down, until the gold cup fits the tooth accurately. Upon removal, the gold is trimmed to the desired height around the edges, always allowing it to extend well up to the little holes on the approximal sides of the tooth, and then with a ball burnisher it is burnished into the central depression in the base of the tooth. The gold will be perforated when burnishing it into this hole, but the burnishing should be continued until the metal accurately fits the margins. It is then filled about one-third full with gold or platinum foil. The gold cup is then removed from the tooth and the balance of the hole is filled with 20k. solder, until it is flush. This gives you a gold cup and pin, which closely fit the diatoric tooth, holding it so firmly that it would almost keep its place without cementing. With the teeth in the cups, but not fastened, they are assembled on the cast and waxed to each other and to the piers, on the lingual side. The assembled piece is then carefully placed in the mouth, and any error in the occlusion is corrected by allowing the patient to bite the teeth to place. The diatoric teeth are then removed from the cups, and the piers and cups are taken from the mouth in an impression of terra-plastica or some suitable investing material. This gives you the pieces invested and ready to solder at the approximal surfaces. For additional strength, a piece of gold plate is laid across the lingual aspect from pier to pier, and the whole overflowed with solder. The polishing should be done with the porcelain teeth in position to prevent possible injury to the fine edges of the gold cups, but they should not be fastened permanently in the cups until everything is completed and ready for the mouth, thus avoiding dirty joints. The teeth may be permanently fastened in the cups with oxyphosphate of zinc, gutta-percha, or by the use of powdered sulphur, after the manner of attaching English tube teeth to gold plates. In case of the fracture of one of these dummies, the repair can be quickly and easily done in the mouth, as the diatoric teeth are readily duplicated, but the danger of fracture is very remote, as the porcelain is at no time subjected to heat, and you have the full thickness of the tooth incased in gold to withstand the force of mastication. This method gives you a maximum degree of strength, a minimum display of gold and an occlusion, which is well-nigh perfect.—DR. R. M. SANGER, *Items.*

ALUMINUM.

Aluminum is in many ways a wonderful substance, albeit in the natural world most of it is oxydized and turned to clay. Its avidity for oxygen is one of its most salient characteristics. It is said that we never see the metal, directly, in air, but always, and only, through a veil of superficial oxide, which forms on its free surface with marvelous rapidity. It is stated that if a fresh surface of aluminum be prepared by scraping with a knife, the oxygen of the air runs in as fast as the scale is peeled off, and keeps close behind the knife-blade. If it were not for this superficial scale of oxide, which acts as a barrier to further action, the metal would burn up, or deflagrate, in air. The large amount of heat developed by thermit, a mixture of powdered aluminum with oxygen-giving substances, bears witness to the activity of the oxydizing process when completed.—*The Electrical World and Engineer.*

PERICEMENTAL ABSCESS.

The trouble is due to an irritant on the outer surface of the pericemental membrane, and primarily, any external tooth-infection, more especially stagnant matter adherent to the necks of teeth, may cause it.

Any tooth having a pericemental membrane, and a conformation to accumulate infection, may be the subject of pericemental abscess. Molars with large, bell-shaped crowns and constricted necks, because of their shape and location in the mouth, are more especially liable to it.

WHAT IT RESULTS FROM.

The conditions preceding its development are neither systemic inclination through aberrant nutrition, nor a circulation floating a so-called gouty poison. It is not a result of infection from putrescent pulp tissue, nor from the prolific gaseous emanations resulting from nitrogenous decomposition within the tooth. Infection from such sources finds expression on the *inner* surface of the pericementum about the apical foramen, and eventuates in the ordinary alveolar abscess. The necleus of this inflammation, and the resultant tumoric abscess, is in touch with some stagnant, septic irritant upon the tooth or teeth, the external surface of the pericemental membrane alone being involved.

PERICEMENTAL ABSCESS NOT PYORRHEA.

The question may arise, is pericemental abscess a state of pyorrhea? My answer is emphatically in the negative. Pericemental abscess and alveolar pyorrhea are often associated in the same mouth, and they may have similar origin, but they are separate and distinct affections. I have never observed the two in connection with the same tooth. I believe the condition non-existent. Pericemental abscess developes from a point of irritation on the external surface of the pericementum, usually some inaccessible depression in which the infection lodges and is confined. It is generally found between the roots of double or multi-rooted teeth, or it may be at the end of teeth having fused roots. Alveolar pyorrhea is more commonly found in connection with single-rooted teeth; when associated with molars, the infection is between, rarely, if ever, under them.

Pericemental abscess is a characteristic tumoric growth, generally between the roots of teeth ; alveolar pyorrhea is an inflammation beginning in the pericementum at the free margin of the gums; in its progress it destroys cemental and alveolar tissue, uncovers portions of the roots of teeth, develops pus, and imparts a characteristic odor to the breath. This inflammation leaves in its train not degenerate, sero-fibrous growths, but broken-down tissue remains, calic sedimentary matter, and other debris which destroys permanently all vital relations between the uncovered portions of the affected roots and the alveolus.

THE GRAND DIFFERENCE.

Pericemental abscess, virulently infectious, is incurable, except through loss of the tooth.

Alveolar pyorrhea, often equally infectious, is wholly amenable to rational surgical treatment.—DR. D. D. SMITH, *International.*

PORCELAIN INLAYS—MAKE THEM ANGULAR.

Retention is probably the weakest link in the chain that represents the different stages in the work necessary to the completion of a porcelain inlay. In the greater number of cases, separation is essential in order to secure for retentive purposes the proximal tooth, which, when it returns to its normal position will lock or wedge the inlay to place. If this is done and the inlay should loosen, it cannot come out and thus be lost. The time consumed in resetting an inlay is nothing compared with the time it takes to make a new one. The margins of cavities for porcelain should be smooth and well defined. The porcelain-inlay burs, the small gem cavity-trimmers and the Arkansas stones for polishing the cavities are of great assistance in the work of preparation for the reception of the porcelain. The gem cavity-trimmers are made for the right angle, as well as the straight hand-piece. This is of especial assistance in shaping cavities on the lingual surface of anterior teeth. If the burs referred to are used, sharp angles can be secured that will greatly assist in the retention of the inlay. There is probably no better way to secure the sharp angles in a matrix than by the swaging system. Many cavities are shaped like a saucer and the inlay is expected to be retained by the cement. This should be condemned as bad practice. An angular inlay will have retentive qualities not found in those with rounded surfaces. In my own practice all cavities in the anterior teeth are opened on the lingual surface. The value of this method is, that as the pressure of the lower anterior teeth is upward and outward and as the labial part of the tooth is standing, the inlay cannot be pushed out labially.

FOR ROUGHENING USE HF.

For roughening the cavity surface of inlays, nothing has been found of greater value than etching by means of hydrofluoric acid.

Even though the inlay should be large enough to groove or cut with stones; the surface near the edges can only be safely prepared for adhesion of cement by etching with this acid.

If the hydrofluoric acid does not work quickly, teasing or agitating it on the inlay with a small wooden stick (washing off and renewing the acid several times) will hasten the etching.

In ten or fifteen minutes more success will be obtained, if you keep continuously at it, than would be accomplished in an hour by simply allowing the acid to remain quietly on the surface to be etched.

SET UNDER PRESSURE.

The pressure in setting an inlay is accomplished in a simple and satisfactory manner by wrapping the tooth and inlay round and round with heavy silk ligature, preferably not waxed, thus allowing the strands to separate until pressure is brought to bear upon every exposed portion of the inlay. This ligature should be in place at least several hours, it, and the inlay, having been covered with sandarac varnish, or, if more convenient for patient and operator, it may remain until the next day. Articles glued under pressure give the best results, and the same principle applies to the setting of inlays in cement.

HAVE A CARE.

Permit me to caution you in the use of the hydrofluoric acid —apply it to your inlay with a wooden toothpick and do not attempt to drop it on the inlay, especially if holding in your hand.

Failure to use this precaution, on the part of one of our profession, led the operator to get it on his thumb. It worked through from one side to the other, destroying the nail and caused him much suffering, as well as loss of time from his chair.*

If this caution will save some one a similar experience, we will feel justified in speaking of it in this paper. though it may seem to be out of place.

---

* In case of accident from this source, treat the part with a bath of weak caustic potash, puncturing the vesicle.—D. O. & L.

WASH THE INLAY.

We would urge also the thorough removal of all traces of hydrofluoric acid from the inlay. Ordinary washing will not do, for after what might be considered a perfect cleansing, if the inlay is laid aside for a day, a white dust will be found over the etched surface, causing inlays to loosen and come out because the necessary care in cleansing is not observed—DR. C. C. TAGGART, *Summary*.

THE NEW TEST FOR BLOOD RELATIONSHIP.

The term "blood relationship" has acquired new significance since it has been proved by Dr. George Nuttall that the blood of related animals actually possesses similiarity of reaction that can be shown by chemical tests. Nuttall's discovery is based on recent investigations of the mechanism of immunity, in which the existence of substances called "precipitins" was demonstrated. These proteids are developed in the bodies of animals by the injection of milk, bacterial emulsions, alien blood, etc., and derive their name from the fact that a precipitate is formed when they are added to the substances originally injected. Thus the precipitin formed by the injection of milk will give a precipitate with milk, but with no other substance, and that formed by the injection of human blood will precipitate only with human blood, or with the blood of some closely related animal. This property is already used in testing for blood in forensic cases, and Nuttall saw in it a means for demonstrating blood relationship. According to him, animals are closely or distantly related as their blood yields a similar or different amount of precipitate with the same precipitin. Experiments made along this line have brought out interesting results. * * * Others are described by Dr. Nuttall in a recently published book entitled "Blood Immunity and Blood Relationship." We quote the following from a review in *Science* (October 28):

"Nuttall and his associates were among the first to see the possibility of establishing by means of the precipitin test a far more accurate scheme of relationships in the animal kingdom than has been possible by any other method, and the results of their studies, extending over a period of three years, are presented in detail in the present volume.

"The elaborate scope of the work may be judged by the fact that Nuttall himself prepared in the rabbit anti-sera for the bloods of thirty different animals, and records no less than sixteen thousand tests on the blood of nine hundred animals. Only the barest outline of the many important results of this extensive work can here be indicated.

CHIMPANZEE A CLOSE RELATIVE.

"In general, Nuttall succeeded in establishing a close blood relationship in different classes of animals which zoologists have grouped together chiefly on anatomical grounds. Among the most interesting of these relationships is that between the Anthropoidea. It is a somewhat startling verification of the consanguinity of man and the higher monkeys that the blood of the chimpanzee gives 90 per cent. as much precipitum with humanized rabbit serum as does the blood of man himself, while the blood of lower monkeys yields only one-fourth or one-third as much. The chimpanzee thus appears much more nearly related to man than to the common Rhœsus monkey. Another interesting result is the observation that anti-pig serum is remarkably diffuse in its action, affecting considerably the blood of primates, and showing that the porpoise has correctly been called the 'sea-hog.'

"Numerous conflicting results are recorded, which is not a matter of surprise, considering that the specimens of blood were collected on blotting paper, often under great difficulties, and sent by mail from nearly all parts of the world. As the author states, only a beginning of the study of blood relationships has been accomplished, and much remains to be done in determining the exact standing of different animals in their respective classes. It is of fundamental importance to have established the fact that the precipitin test is universally applicable as a method of zoological rating, and may have much influence in elucidating many problems of evolution. It may be suggested that new points of view may, perhaps, be secured and former results be effectively controlled by comparing the action of anti-sera for the same blood prepared in other animals as well as in the rabbit, which is the animal almost exclusively employed by workers in this field.—*Literary Digest.*

EXTENSION—FOR CONVENIENCE, FOR PREVENTION, FOR RETENTION.

In the occlusal surface this radical cutting has taken the form of a step and is made for three purposes, namely: for convenience, for prevention and for retention. When we extend a proximal cavity in the occlusal surface to gain access and admit light, we have extended for convenience. Whenever a proximal cavity approaches a fissured or deep groove, in the occlusal surface we cut a step to include such a portion of that groove as to insure self-cleansing margins. This is "extension for prevention." A step cut in the occlusal surface for the purpose of anchoring a proximal filling is extension for retention.

THE OCCLUSAL STEP.

One of the frequent failures of large proximal fillings is a tipping of the occlusal end in a mesial, distal, buccal or lingual direction, resulting in leakage or total dislodgment. It is with the view of preventing this form of failure that many operarors are now using the occlusal step for the purpose of anchoring all proximal fillings.

At no time in the knowledge of the author has any one advocated a limitation in the use of this form of anchorage, to either the mesial or distal, upper or lower proximal cavities, but on the contrary there has been an unmistakable tendency in the opposite direction. A few writers have advocated the universal use of this step, arguing that it is necessary to prevent the tipping or dislodgment of proximal fillings on account of the great amount of occlusal stress exerted in mastication.

It is to this universal use of the step that I wish to direct your attention. I question the advisability of an anchorage step for all proximal cavities of bicuspids and molars.

We have all seen many proximal fillings slightly tipped or totally dislodged from their fastenings, but how many have taken the trouble to observe whether all proximal fillings fail, regardless of the side of the teeth they are inserted in, or whether some fail and others remain undisturbed?

LARGE PROXIMAL FILLINGS.

After some years of careful clinical observation I have arrived at the following conclusions, namely: Large proximal fillings having poor or no occlusal anchorage become dislodged or remain intact according to the strength of the buccal and lingual anchorage, and according to whether they are mesial or distal fillings. *In the upper jaw*, when such fillings have a poor lingual support, they usually become dislodged in a lingual direction, and mesial fillings having a poor occlusal retention generally tip in a mesial direction, while distal fillings usually remain secure. *In the lower jaw* the exact reverse takes place; large proximal fillings having a poor buccal support tip in a buccal direction and distal fillings having a poor occlusal retention tip in a distal direction, but mesial fillings usually remain intact.

It should be noticed that while the direction of the occlusal stress has the tendency on the one hand of tipping certain proximal fillings out of their cavities, it also has the tendency on the other hand of driving certain proximal fillings deeper into their cavities.

The recognition of these principles calls for a more conservative treatment of distal upper and mesial lower cavities.* In the preparation of these cavities in teeth the lobes of which have imperfectly coalesced on the occlusal surface, or the grooves are deep and angular, such grooves and fissures should be included by the extension of a step in this surface. But as this step is necessary only for the purpose of prevention, it should not be made so wide bucco-lingually as when made for retention.

STEP FOR CONVENIENCE.

The difficulty encountered in the preparation and filling of distal cavities in upper molars on account of the posterior position of these teeth, justifies the formation of the step for convenience. This step should be sufficiently large to include all of the distal fossa, and since the disto-lingual groove is generally sulcated, the extension should be continued to include all of the angular part of this groove. These extensions, however, should not be cut so radically as when made for retention in mesial cavities of the same teeth.

We should conserve a still greater quantity of tooth substance in all distal upper and mesial lower cavities not requiring an occlusal step for convenience or prevention. However, a strong lingual wall in the upper and buccal wall in the lower cavities is necessary to prevent these fillings from being dislodged by the bucco-lingual direction of the stress. In the absence of such lateral support an occlusal step is required for retention.

In conclusion I will say, first: that I believe it is advisable to extend the walls of proximal cavities in a gingival, buccal, lingual and occlusal direction, for the purpose of prevention and convenience, and second: to extend all mesial upper and distal lower proximal cavities in the occlusal surface for the purpose of retention, even though it may not be necessary to make such step for prevention or convenience. But I contend that we are not justified in sacrificing tooth substance in the formation of an anchorage step for the *retention* of distal upper and mesial lower fillings.—DR. R. J. WENKER, *Summary.*

---

* See leading article, by Dr. Junius E. Cravens, in our November issue.

THE PRACTICAL PLACE.

A CONGRESS EXPERIENCE.

"For downright cold-blooded frigidity I commend the dental profession, generally speaking."—DR. J. B. CHAFFEE, *Western.*

FOR REGULATING BANDS.

A nickel rolled out to the proper thickness serves the purpose far better than German silver. It is better in color, and remains so; is somewhat stronger, and can be soldered with the greatest ease.—*Brief.*

PLATE-POLISHING COMPOUND.

To put a high polish on a plate use aqua ammonia in the chalk instead of water; the result will be found satisfactory. After polishing plate, wash it in a tepid water, and dry. Then go over plate with a clean buff wheel.—*Stomatologist.*

ROUGHEN THE MARGINS.

Doctor Rhein trims the cavo-surface angle with a gem stone and then finishes it with sandpaper disks, a method I have observed many men use. Tight margins cannot under any circumstances be made against a smooth margin if gold is the filling material used. Gold slides over a polished surface, for there is nothing against which it can be restrained in its course. But roughen that margin by planing it with a sharp chisel, and gold will hug that roughened surface, if properly placed, so that water-tight margins can be made.—DR. E. K. WEDELSTAETT, *International.*

ABSORBS AND REFLECTS.

The following from a Johnson & Johnson circular will be found of practical value in every operation for the furthering of which the dam is applied: "After the rubber dam is applied, a six inch aseptic dental napkin, laid over the dam while introducing a gold filling, will be found to absorb all moisture from the patient's breath and from the operator's hand and prevent condensation of this moisture upon the dam and upon the filling. The white surface of the napkin also reflects light far better than the dark surface of the dam. Gold will be found to work perfectly in this way where there may have been trouble without the cause being recognized."

SALOL-THYMOL-ZINC AS PULP-CAPPING.

A neighboring practitioner who has experimented in the direction of securing a compound that could be easily applied and that would become hard very quickly, told the writer that his best results were obtained by incorporating equal parts of salol and thymol with sufficient commercial zinc oxid to give it body. The salol and thymol were made fluid over a water-bath and the zinc oxid added and thoroughly incorporated before the mass had time to congeal.

A heated burnisher or other instrument applied to the solid mass would fluidize and take up enough of the material to flow over the pulp exposure and cover it.—DR. S. H. GUILFORD, *Stomatologist.*

ANTI-TOOTHPICK CRUSADE.

"After the luncheon and dinner hours in America, people are frequently met in the streets using wooden toothpicks. A crusade is now being organized against this habit, and it is hoped that the movement will prove as successful as the crusade against promiscuous spitting and gum-chewing, two national accomplishments now being undermined by the force of enlightened public opinion. By way of a start, policemen have been forbidden to use toothpicks when on duty."—*British Journal of Dental Science.*

The wonder is that keepers of restaurants haven't supplied their patrons with earpicks, handkerchiefs and fine tooth combs. The toothpick is an article of the toilet and is no more fitted for use in other than private places than the tooth brush, silk floss or powder. Its function is to dislodge oral filth, and the place to perform this act is neither at the table nor on the street. Its whereabouts should be known only to the owner.

"THE SAFETY POCKET."

The extract on "Arsenic," in our November issue, from a paper by Dr. D. D. Smith, brought to mind the fact that Dr. J. W. Clowes had said a similar thing in '77, before the New York Odontological Society. Dr. John B. Rich had done the thing even earlier, but never as a practice. Dr. Clowes said in the course of his paper on "The Safety Pocket": "The application of arsenic to a tooth with safety requires, with few exceptions, a complete avoidance of the cavity of decay. Make a pocket or retaining cavity for yourselves in a perfectly safe and convenient location. * * * Make it in and through, if necessary, the sound enamel and bone. Let it penetrate one-half or two-thirds in depth toward the pulp. * * * Let the pocket be small, but larger inside than at its orifice. Saturate a small pellet of cotton with creosote and arsenic—of creamy consistence—and deposit at the bottom of the pocket. Apply other pellets of dry cotton over this one and pack them skillfully away."

NOTE AND COMMENT.

A MATTER OF FORM.

The dentist who is new to the profession, or to the town, or both, should not forget (and in the forgetting feel hurt), that it is his place to make the initial call on other practitioners, young or old,—a matter of "good form" the very reverse of that which holds in the social world.

"CUT IT OUT."

That ancient "hack," to the effect that a little mercury applied to an old amalgam filling will soften it to that degree that it may be fairly scooped out by means of an excavator, is again on its rounds, notwithstanding the savage rap that it got at the hands of the late Dr. J. Foster Flagg, at least twenty years agone. To quote a confrere, "Mercury has about as much effect on old amalgam as castor oil has on a graven image."

AN ADVANCE IN TOOTHPICKS.

According to the *Standard*, of London, "Messrs. Robinson and Fisher offered for sale two interesting relics of Charles I.

The first of the mementos was the gold case and toothpick given by the King to Col. Tomlinson, who had charge of him from December 23 till he delivered him up to Col. Hacker, the bearer of the death warrant. Attached is the original paper which tells that it was all the King had left to requite the Roundhead officer for his civilities. Secondly, there was the blue ribbon worn by Charles at the time of his going to his execution, the only authenticated Royal blue ribbon extant, as the seller holds. Both relics had remained till now in the possession of the direct descendants of Col. Tomlinson."

The two articles were offered together, and were purchased by the Reatons, dealers, for £580.

IT WAS "INFLUENZA" THEN.

In those recently issued and most readable "Letters from England," by Mrs. George Bancroft, wife of our then minister to the Court of St. James, she tells of the condition of people of London, when smitten with what we delight now to speak of as *La Grippe*. This particular letter bears date of December 2d, 1847, and reads as follows: "Everybody here has the *Influenza*, a right-down influenza that sends people to their beds. Those who have triumphed at their exemption in the evening, wake up perhaps in the morning full of aches in every limb, and scoff no longer. * * * Dinner parties are sometimes quite broken up by the excuses that come pouring in at the last moment. Lady John Russell had seven last week at a small dinner of twelve; 1200 policemen at one time were taken off duty, so that the thieves might have had their own way, but they were probably as bad off themselves."

SHOULD BE "OUT OF SIGHT."

In speaking of a visit to the studio of the world's most famous of women photographers, a foreign contributor to *Wilson's Photographic Magazine* says: "The usual paraphernalia which one associates only with the photographer, the inquisition, and the dentist, were not to be seen." Which reminds us of something that was seen in the Congress clinics at St. Louis. The patient, a lady of hypersensitive make-up, was made to suffer untold agony, even to the shedding of tears that were wet, while undergoing the operation of having a pulp made comfortably removable by means of pressure anæsthesia. The material and the method may have been just right, but to all appearances somebody had not mastered a given phase of his business. A looker-on had the temerity to ask if the intense pain might not be justly attributable to the anæsthetic, to which another bystander, "butting in," replied that in all probability it was due to the pressure.

BLUE LIGHT—THIS TIME AN ANÆSTHETIC!

Recollections of the late General Pleasonton, one of the most famous of American cavalry leaders, but in his abundant leisure of later days better known for his advocacy of the blue window glass cure of thirty-five years ago, are revived by the following, now doing duty in the wonder columns of the daily press: "The other day the Geneva correspondent of the London *Daily Mail* personally tested a new system, by which the glamour of romance, the joys of the lotus, are lent to the extraction of teeth. A Swiss dentist has discovered the method whose efficacy, nay, whose whole philosophy, is based on the employment of blue light. Having placed the correspondent in a recumbent position, the doctor impressed upon him the great importance of faith in the new process, and then commanded him to gaze steadily at an ordinary sixteen candle power electric light, with a blue glass bulb fixed within eight inches of his eyes. Behind the lamp was a reflector. After covering his patient with a large blue cloth the doctor left the room." Returning at the critical moment, the doctor removed the offending molar, the genial patient not feeling it "in the least."

"FOR GOD'S SAKE."

Whether a growing tendency, or merely a spurt in that direction, may be a question; but the number of speeches of late in dental meetings in which the name of God has been taken in "vain" and other styles is simply appalling. The man who falls short in his own estimation of impressing his hearers becomes pathetic in his appeals, and forthwith begs them "for God's sake do it," or "in the name of God give them the benefit of it." Now, this is cant, and, as used by the would-be impressive speaker, speeds rapidly into rant, and as such not only fails of its purpose, but actually turns the mental stomach of everyone present,—always excepting the speaker, who, having fed indefinitely on this kind of pap, has been rendered immune. Cocain, cataphoresis, pressure anaesthesia, etc., are not used "for God's sake," nor are they used except by the alleged devout "in the name of God." These things are for the physical, mental and moral comfort ot the patient in the chair, also for the reputation and profit of the good man over against the chair. God is not concerned in the operation at all, and the man who is "awfully in earnest" would do well to get this into his head and keep it there, especially during the heat of debate. Cant phrases and rant methods make poor wind with which to pilot skyward into the affections of one's hearers.

"GINGER."

We often hear of dentists putting "ginger" into their papers, also into their speeches, even to the verge of personalities. The former is a fine habit; the latter may be. This, however, is not the kind of "ginger" now in mind, but rather the older, better known and more useful zingiberis. The taking of the essence of ginger, according to Dr. S. Weir Mitchell, is a rapidly growing form of inebriety, both in this country and in England. As the quantity of alcohol in the ordinary tinctures is about double that of good brandy or whiskey, over-indulgence in this comparatively new jag-inducer is easily in the interest of conditions and behavior that are at least unseemly. "Gingerists are people with weary brains and disordered stomachs, who seek palliation from overwork." They think they have use for morphia, chloral, cocaine, etc., but are afraid of the remote after-effects; but ginger, a common domestic remedy, and from their standpoint a practically harmless one, quiets the gnawing within, eases the mind, and while its effects last enables them to push the work in hand to completion. Later, however, the victim of this form of over-stimulation finds himself, or more often is found by others, ruined in body and thoroughly wrecked in mind. Spices generally are sufficiently deleterious in their effects when used alone, as a bit of nutmeg carried for an hour or two under the tongue will demonstrate; but when their most active and characteristic principles are held in solution in alcohol and drank, the effects are immediate and eventually complete.

THUMB SUCKING—HORSE-SENSE TREATMENT.

Not long since Dr. J. W. Cowan, of Geneseo, N. Y., had thrust upon him, in less than three minutes, more practical information on the treatment of thumb sucking than books hitherto published have succeeded in compassing within a hundred pages. It came about through a couple of calls from an old German woman, the first of which had for its object relief from pain in or about a tooth or two. She was soon made comfortable, and the Doctor, knowing she could ill afford to pay what the service was worth and unwilling to make a precedent by charging her less, undertook to dismiss her. This, however, was not to the old dame's liking; to "danks" she added, "I bring you some broons." The doctor, however, didn't know that he had any use just then for "brooms"; but if it pleased her she might bring him some. A few days later she called again, not with a stock of brooms, as the doctor had expected, but a market basket of *prunes*, such as only Livingston county can produce. While waiting to make herself and her errand known she became interested in a child accompanied by his mother, whom the doctor had just treated and was about to dismiss. When both had gone she asked: "Vat's the matter of the little poy?" "He has crooked teeth; I'm making them straight." "How he got it?" "Sucking his thumb." "So! My little poy, he have that; I sthop it." "You did? How?" "I sew a sthick by the sleeve of his night shirt; ven he makes his tum by his mouth it goes by his ear on the utter side." Dr. Cowan is a wiser man than before the Congress, and (if that were possible) a better one.

MEETINGS.

The Montana Society will meet at Butte, February 20th.

The Southern branch of the National is announced for February 21st, at Memphis, Tenn.

The Institute of Dental Pedagogics held its annual meeting holiday week, in Louisville, Ky., a more congenial place this season of the year than Buffalo, especially to the members from the extreme South.

It is proposed to hold a Pacific Coast Dental Congress at Portland, Oregon, next summer, in connection with the Lewis & Clark Exposition. The *Dental Gazette* is enthusiastic in behalf of the venture. Western men and Western methods usually bring about substantial results.

BOOKS.

A GENERAL CATALOGUE, by P. Blakiston's Son & Co., interleaved for notes and neatly bound. It gives title and price of leading medical and dental books, at the same time putting the reader in close touch with the publishers who appreciate and are always ready to respond to intelligent inquiry.

BURCHARD'S DENTAL PATHOLOGY. New (2d) edition. A Text-Book of Dental Pathology and Therapeutics; a Treatise on the Principles and Practice of Dental Medicine. By the late Dr. Henry H. Burchard, thoroughly revised by Dr. Otto E. Inglis, of the Philadelphia Dental College, Philadelphia. Octavo, 650 pages, with 450 engravings. Cloth, $5.00, net; leather, $6.00, net.

In revising the work of the late Dr. Burchard, the editor has faithfully kept in mind "the original motive of its author"; in other words, "the production of a text-book which may serve as a useful basis of instruction upon a subject which students find difficult to comprehend from lecture alone." The original plan of the work, including the arrangement of its chapters, remains practically the same. The text has been thoroughly revised and for much the greater part rewritten, not only for the introduction of new matter, but also for the highly commendable purpose of making clear and comprehensible much that was obscure and difficult to understand in its predecessor. This is merely the difference in the style of author and editor; the latter illumines where the former left the reader in the dark,—not as to facts, but as to the formulating of them.

Some criticism has been made on account of the comparatively large amount of space given to anatomy, embryology and histology; but as these studies are stepping stones to the subject proper and many students are men of but one book, the space may be said truthfully to have been put to good use. It is often more convenient to consult several related subjects under one cover than under many; it saves time and reduces the chances of deferring the reference until forgotten. Barring certain omissions in the matter of proper credit and a few inconsequential errors in matters of practice, all of which may be set right or eliminated by the student who studies, the work is fully up to the requirements of the day as to contents, treatment and illustration.

The busy practitioner, as well as the student, which the practitioner should be to the end of his days, will make fewer mistakes in diagnosis and treatment with this text-book at his elbow, and may add materially to his stock of pathologic lore every time he turns to its clearly printed, profusely and handsomely illustrated pages. It is a book to be studied as well as to be constantly referred to and read.

WIT AND HUMOR?

"Is this where they sell licenses?" "Yes, sir." "I want one." "Poet or dog?"

The manufacturer of obesity remedies lives on the fat of the land.—Philadelphia *Record.*

Dinwit—"Say, our backbones are like serial stories, aren't they?"
Thinwit—"Prove it."
Dinwit—"Continued in our necks."—Harvard *Lampoon.*

"I fell over the bulwarks," said the sailor, "and the shark came along and grabbed me by the leg."

"And what did you do?"

"I let him have the leg. I never dispute with a shark."—Chicago *Journal.*

A Chicago paper has the following, sort of a "snide light" on the history of the steel trust:

"Bismark," said the old Emperor William to his minister one day after a dispute, "you are certainly an iron chancellor."

"Why, your majesty," asked the prince, "do you call me that?"

"Because," replied the aged monarch, "every time you get hot you lose your temper."

Two young fellows at "Tech" had got "off their feed," whereupon Aunt Addie, who had been prevailed upon to look after their physical needs during the school year, prescribed forthwith the time-honored family remedy, sulphur and molasses. At the end of a week their dough-like complexion had given way to the rosy hue of healthful youth and, like Cy Prime in the "Old Homestead," they became coltish. Observing the fulness of the change in their appearance and conduct, Auntie inquired if the mixture had had the desired effect. "Don't know," said one, "whether it had or not; it put us both 'on the bum' just the same." After a moment or two of deep meditation, and a like period that may have been devoted to prayer, the good lady quietly observed: "That's what sulphur and molasses is for." "Te-he," came in concert, and both stepped softly from the room.

THE
Dental Office and Laboratory
FOURTH SERIES

VOL. XIX. PHILADELPHIA, MARCH, 1905. No. 2.

WHY USE LOW CARAT SOLDER ON NEW DENTAL WORK?

BY WILLIAM H. TRUEMAN, D. D. S., PHILADELPHIA.

The time was, and not so very long ago, when gold solder kept for sale at the dental depots was so brittle and so broken that it might be handled with a scoop. This is now changed. Firms catering to the wants of dental mechanics have brought skill and science to bear upon their metallurgical departments, and as a result the needed precious metals are obtainable in better form and in greater variety. The tendency, however, to debase the solders, while no doubt in response to a demand for solder of easy flowing qualities, is not to be commended. The fault, however, is not with them, but is due to faulty teaching in our schools and text-books. The time was when solders of a standard carat were for sale; now they are advertised and branded, not as of a certain carat, but as *solder for a certain carat plate*, special stress being laid upon their easy flowing qualities and good color rather than upon their fineness. The reduced price plainly indicates that they are debased.

In an excellent text-book upon prosthetic dentistry, now before me, I find the following formula for a gold solder, which, it states, "may be used in connection with eighteen or twenty carat plate":

6 dwts. pure gold.
2 dwts. rosette copper.
1 dwt. fine silver.

That such a formula should be published in a dental text-book of so recent a date (1897) is a disgrace, and yet it is a fair sample of those set before dental students by their class teachers and their text-books in this year of grace, 1905, copied without change from ancient text-books.

In the first place, it is not explicit, nor yet in accord with usage in scientific works. Why should the reader be compelled to work out a mathematical problem in order to obtain information that should be conveyed by the formula itself?

Let it read:

16 parts (or dwts. or grains, it is immaterial which) pure gold,
5⅓ parts rosette copper,
2⅔ parts fine silver,

and the reader knows at once that the resulting solder is sixteen carats fine. It may be used, of course, upon eighteen or twenty carat plate; but why should such low carat solder ever be used in connection with eighteen or twenty carat plate? This is followed by two others, one a fraction over fifteen carats fine, and another eighteen, both naming gold coin and brass as components. Now let me ask, What is "rosette copper"? What is "gold coin"? What is "brass"? When this formula was first written, some seventy or more years ago, "rosette copper" might possibly have been some special brand of that metal; it has no meaning now. Brass, fine brass, brass pins, etc., are of as uncertain composition as is a low grade of boarding-house hash. Regarding "gold coin," nothing is certain beyond its containing a definite amount of pure gold. No doubt, when the mouth blow-pipe was in general use, with the well-remembered alcohol lamp, that now and again blew up, or more frequently "went out," like those of the unwise virgins, and from the same cause, before the soldering operation was completed, or in prolonged operations blinded one by its irritating fumes, a solder fusing at a few degrees less heat was appreciated. All that is now of the past, and it is high time that expedients made necessary by meager facilities were erased from dental college teaching and dental text-books.

All the needed metals, gold, silver, copper and zinc, are now readily attainable, as nearly absolutely pure as chemical processes carefully conducted can make them; and they only should be used. The difference in cost between pure gold and pure silver, and coin gold and coin silver, is trifling. Pure gold costs, at the refiners, one dollar and ten cents per dwt. for any amount less than an ounce, and twenty-one dollars an ounce. This never changes. Pure silver fluctuates; its present price is about seventy-five cents an ounce; pure copper is about twenty cents an ounce; pure zinc about fifteen cents an ounce. The base metals may be obtained from dealers in fine chemicals, who provide these metals for use in delicate chemical processes. There is no excuse for using, and no excuse for advising the use of commercial metals or alloys in making either plate or solder for dental use. They all contain harmful impurities.

Now, it is not every dentist who has facilities for making his own plate or solder, and when it can be purchased from reliable parties it is better to do so. It is well, however, to understand that eighteen carat gold solder and solder for eighteen carat gold plate are not the same. The latter is usually about two points lower carat.

If in the formulas for plate and solder given in the textbooks the number of grains of the precious metal in each pennyweight is first given, the formula itself announces the carat. It is rather more scientific to state the parts in thousands; either, however, is explicit. The use of alloys should be discarded. There is no advantage in their use; they are confusing and unreliable.

The following formulas I use in my own laboratory. They are all I need for new work, and I find them quite satisfactory. They flow freely, have good color, and are as tough and pliable as plate. Between their fusing point and that of the metals for which they are intended there is ample margin. The eighteen carat will flow freely upon silver plate, and the twenty-two carat upon eighteen carat plate without in either case the plate being over-heated. This is my test of their fusibility.

Twenty-two carat gold solder.
22 parts pure gold,
1 part pure copper,
1¼ parts pure zinc.

Eighteen carat gold solder.
18 parts pure gold,
3 parts pure silver,
2 parts pure copper,
1½ parts pure zinc.

Silver solder.
19 parts pure silver,
1 part pure copper,
4 parts pure zinc.

There is a slight loss of zinc, especially in making gold solder, not from oxidation, as the books generally state, but from volatilization, which is quite a different thing.

A fraction of a grain is added to allow for this. If pure metals are used, there is so little oxidation that as a rule the crucible from which the solder is poured is left perfectly clean; so clean, indeed, that they are promptly broken to avoid the temptation of using them again; a dangerous experiment, as the borax usually penetrates the bottom and causes them to leak when used a second time.

Either in safety to the porcelain teeth or to the plate, the slight difference in the fusing point between the high and low grade solder is of no practical advantage, and for new work a solder of a lower carat than the plate is inexcusable. The lower grade solders are occasionally required in making repairs and should be used for that purpose only.

Silver being more fusible requires a solder a little less fine, but there is no excuse for using a silver solder composed of equal parts of silver plate and brass.

While zinc is a base metal, and is credited with causing brittleness when alloyed with the precious metals, the character it has acquired as a component of precious metal alloys is not deserved. It is due to the impurities found associated with it rather than to the metal itself.

Notwithstanding that the solder sold as solder for eighteen carat plate is but little if any finer than sixteen carat, I am told by dealers that many dentists when purchasing eighteen carat gold plate purchase sixteen carat solder to use with it, so that as a matter of fact they are using on new work fourteen carat solder. I wonder why! It cannot be economy; the difference in cost is too insignificant. I take it to be ignorance, or it may be that they do not possess proper heating arrangements, or lack effective blow pipes.

With the advent of crown and bridge work, a handy form of blow pipe has come into general use. For small, delicate operations they are very convenient, especially when the work is done in the office on an office work-bench. None that I have tested have proved satisfactory for serious work. The old-fashioned large gas flame and the old-fashioned blow pipe, operated with a foot pump or bellows, may make things hot on a warm day, may occasionally singe the hair or burn the fingers, but when their use is once mastered, soldering with honest, high-grade solder is a pleasure.

As gold solders are now graded, a solder two carats higher than the plate should always be used. It would be better, however, if the dealers would cease to equivocate and sell their gold solders for what they really are.

Another reform. Our text book writers should discard all the old out-of-date formulas. There is no necessity for a multiplicity of formulas, one for each grade is amply sufficient; and they should teach that the plate and solder should be of the same fineness.

As before remarked, the difference in the fusing point of solder differing slightly in carat is no help to the workman constructing a new denture, but it makes a great deal of trouble at times, when that piece of work requires repairs or alterations, and these are attempted with "honest" solder.

"THE PREPARATION OF A SCIENTIFIC PAPER."—SUPPLEMENTARY REMARKS.*

By Mr. Chas. H. Ward, Rochester, N. Y.

Speaking about the scheme of taking notes,—this may not be necessary for those heaven-born geniuses who, having encyclopedic memories, write profound scientific papers without references; but for the average man notes are a necessity.

I have in mind, particularly, a young man who came to my father's establishment,† as a long, lanky son of a sea captain. He had spent several years on shipboard after completing a common school education by two years in high school.

Scientific to the Core.

He had the sharp nose and close set eyes which are said to be indicative of the original investigator. He was interested in things; not in one, but a half-a-dozen or more. Roller-top desks were expensive luxuries in those days. Also, employers took care not to pay their help at a rate liable to foster extravagant habits. So the young man, in lieu of pigeon holes, took some cigar boxes, arranged them on his writing table, and labeled them with the topics uppermost in his mind. He was continually making notes on all manner of cards, or pads made from printer's scraps. References in books, conversations, or any source; anything on one of the dozen or more subjects would go, together with the source of information, into its appropriate cigar box. Some of these took five, six and eight years in filling. Everything that man saw, heard, read or knew about that subject was boiled down. When he started to write a paper, he would spread out his notes on the table. The natural classification would suggest itself. The notes would build the paper, and the paper would be a good one.

---

* See our issue for July, '04.

† Ward's Natural Science Establishment.

I have tried to indicate the methods of this one exceptional man with no unusual ability, except that he took unusual pains and was deadly in earnest. That young man is to-day the author of not only one hundred or more papers but of two scientific works on Paleontology, has been many years Curator of an important division of our great National Museum, and is probably the greatest living authority on the osteology of a certain class.

IN A HURRY.

One persistent fault of young scientific graduates is that they are too anxious to make a reputation, and rush into print. They do not ponder their subject. Darwin, who was considered somewhat of a scientist, pottered away at the study of the variations in species and made little series of observations for twenty years before he ever put a word before the public, and would not have done it then but for another man, who, working along dissimilar lines, had arrived at the same conclusions, and sent them to the Royal Society to be read. Darwin's friends persuaded him to send a synopsis of his own labors, and the results are as you all know.

PROOF MUST GO WITH CLAIM.

A sample of the result of going off "at half cock," a fatal example, is that of the late Dr. Schenck with his theory of the control of sex. He tried it out on a few enterprising ladies and gentlemen. He had just enough success to assume that he was right, but the theory was not proven by the results derived from two or three or half a dozen experiments.

Dr. Black did not measure twenty or one hundred teeth to find the average length, he measured ten thousand, and is probably measuring yet. Dr. Schenck's theory was not only ingenuous, but physiological, and appealed to physiological people. But he claimed too much before he could prove it. He was expelled from the faculty of the University of Vienna for his premature announcement, and died shortly afterwards, with who shall say what vain regrets gnawing at his heart.

BUILT WHOLLY ON SAND.

A so-called scientist in Washington, is another sample of this kind of men. Only in his case there is less scientific foundation to build on. This is the man who discovered the very simple fact that by putting one microscope to the eyepiece of another microscope, unheard of and incredible magnifications could be obtained. The so-called "test diatoms" were resolved with such ridiculous ease that they ceased to be tests. His paper was actually printed in a so-called popular scientific periodical, to the misinformation of thousands of readers. Too late, its editor learned that the utmost limit of magnification had long ago been proven by Helmholtz to be to render visible an object of a diameter equal to one-half a wave-length of light.

A paper may be read in full or by title only. If lengthy or of restricted interest it is read by title only in the society before which it goes. It passes then to the committee on publication, and if found to be suitable is printed.

WORKED BETWEEN TIMES.

As an example of what little things may determine a man's future work, let us glance at a book whose source originated in Rochester, and with which you are no doubt familiar, written by the late Hon. Louis H. Morgan, and entitled, "*Systems of Consanguinity and Affinity of the Human Family.*" He was the leading authority in the world on this subject. It seems rather an unusual subject for a busy lawyer. When he was a college student he joined a secret society, in which, in order to make the initiation ceremony more impressive, they introduced as many of the ceremonies of the Indians as possible. Young Morgan became interested in the subject, studied the nearest tribes, learned much about them, and finally wrote "*The League of the Iroquois.*" But certain relationships of these Indians not recognized among whites, led him to make a comparative study of aboriginal kinship throughout the world.

From a schoolboy's interest in his secret society came the impelling force of a life-time of investigation. He was the leading authority on the subject of consanguinity. All the vast mass of evidence bearing on marriage throughout the whole human race was collected by him, with the aid of the Smithsonian Institution, and published by it in by far the most expensive work it had ever undertaken. He accomplished this in the slight leisure of a busy law practice. It is the most complete work that was ever written, or I believe ever can be, as many of the races have passed out of existence.

"EXTENSION FOR PREVENTION" AGAIN— DR. BLACK'S LATEST WORD.

The last word may not have been said on this subject, but it is a question if much more of practical value can be added to Dr. Black's presentation of the matter at the December meeting of the First (N. Y.) District Society. Drawings by the speaker, and lantern slides by Dr. Noyes, made the whole discussion as clear as crystal; but Dr. Black's illuminating English makes it easy to grasp his meaning even without the aid afforded by pictures. We give the pith of his remarks in nearly his own words, omitting only the descriptive matter called for by the illustrations :

There seems to be no considerable necessity for a review of the literature on the subject of "Extension for Prevention." The discussion of it began with my papers of 1891, and has grown broader and deeper year by year. It has already affected the practice of every progressive dentist in this country and of very many in foreign countries. This literature is the property of the dental profession. Most men have their own individual notions regarding it. These notions have been variously derived from their readings, from cases in the practice of others that have come under their observation, from what they have noted in the cases presented in their own practice, and by the thought expressed by those in whose opinions they have great confidence. These are all legitimate methods of forming opinions upon subjects in dentistry, but the views of each and every person will be colored and modified by his own preconceived views derived from his earlier education in dentistry. None of us form our opinions purely from individual study and elaboration of the clinical facts we have ourselves observed. On the whole it is well that we do not. It is according to the nature of the human mind that one shall lean upon another and that harmony of thought shall, for the most part, prevail. Yet it is well if there be reasonable dissensions and discussions, with sharp criticisms, which lead to better understandings.

MADE IT DEFINITE.

Extension for prevention was not entirely new in practice when I first wrote that expression of it. Many men in this country were in some degree practicing the same general thought before. I only crystallized the thought into more definite form of expression and brought it more intimately to the minds of men. The controversies occurring since have served to distinguish it as a somewhat special form of practice, having for its object a more radical and definite cure for decay of the teeth. Its practice calls for a closer study of dental caries in both the physical damage done to the teeth and the pathological conditions surrounding and promoting the evil than formerly prevailed; a mouth to mouth study of the cases presented, and the tendencies in each in all the light to be obtained by the hereditary tendencies in the individual's family, coupled with the careful study of the injuries and the tendencies in the individual case. The treatment of every case of physical injury by caries should be designed from the standpoint of the study of the individual person, the tendency to caries in the mouth as a whole, and finally of the conditions presented in the individual tooth, and the individual operation planned in its relation to the whole and for the benefit of the whole mouth and person. The filling of a cavity is only an incident in the general scheme of treatment for that person.

MAY PROVE FATAL.

The greatest danger to the teeth from dental caries consists in its disposition to spread widely upon the surface of the tooth. If it does not begin in the surface of the enamel, we have no decay, for decay always begins upon the outside and extends inward. When this beginning is strictly localized within a given area of a surface, as it is in the occlusal surface of the molars in its beginnings in the pits and grooves, its treatment should give little trouble, if undertaken before the penetration has been so great as to seriously affect the health of the pulp or the strength of the hard structures. In these cases our observation has shown that in case the fillings are well made, so as to prevent the penetration of decay about their margins, there is no disposition to a spreading of decay upon the surface of the enamel, constituting a re-beginning of decay in the neighborhood of the margins of the cavities. In these occlusal decays the opportunity for the beginning is in the depths of the pits and grooves because of lodgments and a certain kind of uncleanliness which gives rise to localized acid fermentation. Whatever may be the tendency of decay thus started to penetrate the dentin and burrow into the tooth, its spread on the surface of the enamel is effectually hindered by the uses made of the occlusal surfaces of the teeth.

THERE, BUT NOT SEEN.

I wish to emphasize this fact, which seems not to have been sufficiently understood. If there is a whitened area of decay, even though it be small and has penetrated the enamel in a narrow point, and the decay is spreading in the dentin and burrowing along the dento-enamel junction, it may be that the breaking in of the enamel from *decay from the inside out* will be much more rapid than the spread of decay externally. In this case no appearance of the spread of decay is seen on the external surface, for the simple reason that the internal spreading of decay has been the more rapid. But if this cavity should be filled without extension and thus prevent the internal spreading of decay, we are liable afterward to have whitened margins about the filling, indicating that decay is spreading superficially. The tendency to spread upon the surface was there and in action, but the breaking away of the enamel from undermining from within was rapid enough to outrun the spreading upon the surface, and the spreading upon the surface had not been seen, so that in many cases of caries we find the necessity for extension where whitened areas of enamel are not at the moment discoverable, or we will suffer from the necessity of repairing or re-making fillings later.

It is often unnecessary to cut broad cavities. On the other hand it is often necessary that we do cut broad cavities, depending upon the nature of the case, the contact and the openings of the embrasures. In some of these we may avoid cutting broad cavities by separating widely and building out contact points that will hold the margins of the fillings well away from the approximating teeth and make good and safe fillings with less breadth of cutting than would otherwise be necessary.

ANGLES ARE SAFETY POINTS.

The gingival third of the buccal surfaces of the bicuspids and molars shows the tendency of decay to spread along the gum margin over the central portion, both mesial and distal. I insist upon the making of these cavities, in their preparation for filling, broad in these particular directions. I also insist that the angles of the teeth, extending from the occlusal to the gingival, are the safety points or lines *toward* which to place the margin of cavities. In the operations in our school* last year I had special examinations made with reference to the safety of these angles. I interested my examiner, also members of my senior class, particularly in the search for cases where decay passed these angles of the teeth from a proximal cavity in the molars and bicuspids or incisors to the labial or buccal surface, or from the labial or buccal surface to the proximal surface, or where the two joined in the spreading of decay superficially. This investigation, which included eight thousand people from all the walks of life and almost every nationality upon the globe, shows only about one such case to a thousand persons. While this may have happened to be fewer than normal, it is enough to show that the angles of the teeth from the incisal or occlusal to the gingival are decisively the safety points close to which to lay the enamel margins in any case of severe caries of the teeth.

---

*Northwestern, Chicago.

AREAS OF DANGER.

It is also well for us to remember that in the preparation of cavities if we cut beyond these angles in the preparation of proximal cavities, or if we cut beyond these angles in the preparation of buccal or labial cavities, we are cutting beyond the lines of safety and approaching areas of greater danger. I insist upon the fact that the greatest danger to the operative dentist in filling teeth is the disposition of caries to spread upon the surface of the teeth in which the filling is placed, and in proportion as the predisposition to decay is severe, the cutting should be carried well toward the angles of the tooth in the preparation of cavities. In cases of less severe predisposition to caries, the cutting may be less broad, but in all cases of proximate cavities it should be sufficient to remove the line of the enamel margin well away from the approximating tooth. In the discussions regarding extension for prevention much has entered that does not apply; for example, in the bicuspids and molars the universal cutting of steps in the occlusal surface of the teeth. This has been done, not as an element of extension for prevention, but as an element of strength in the anchorage of these fillings. This development was coincident with the development of our knowledge of the force with which the human jaw could be closed. It had been practiced to a considerable degree by many dentists, and has since been urged by many in connection with extension for prevention. Also, the removal of all overlaps of enamel, no matter how thick and strong, until sound dentin had been reached, has been urged and coupled with extension for prevention, although it does not properly apply. Further, I deem it wise to cut proximal cavities in the bicuspids and molars broadly to the occlusal surface in such form as to give the most easy access and the greatest convenience in packing gold or amalgam, for the reason that it can be done in less time, more perfectly, and the failures from imperfect operating will be fewer.

CUT BROAD—NOT DEEP.

I wish to call attention strongly to two facts. First, that it is the disposition to spread superficially that is the greatest element of danger in decay. Second, that the allowing of decay to penetrate deeply into the dentin is the greatest element of danger to the vitality and strength of the tooth. Therefore, decays should be filled very early and the cutting should be as broad as may be necessary to eradicate and prevent the recurrence of decay, but the cavities should not be cut deeply into the tooth substance. There is no necessity for cutting deep cavities in these cases. Therefore, the continued health and usefulness of the teeth require this care in seeing our cases before decay has penetrated deeply, the broad cutting that may be necessary, making cavities always shallow and filling them securely. This requires the closest study of caries, its nature, its habits, the hereditary predisposition to decay, the peculiarity of decay in individual families and among the children of these families, and the adaptation of means to the combating of the peculiar characters presented in the individual case as presented in the family history in order that we may do the best service to our patients.

Dr. Hofheinz followed Dr. Black with a formal discussion, in the course of which he made a strong argument in favor of conservatism in this, to some, radical procedure in the treatment of dental decay.

The day following the paper and its discussion, Dr. Black was tendered a breakfast at the Astor. Many were called, most of them came, and after meat availed themselves of this exceptional opportunity to greet one of the chiefs of the makers of modern dentistry.

WAX IMPRESSION IN PLASTER TRAY.

I might go into details of the methods now in general use, but think best to confine this paper to a method of combining plaster of Paris and wax, which I have used, to good advantage, in a great many cases. First, take a plaster impression, dry with a napkin, and warm slowly with blowpipe. When hot enough to melt beeswax on, run a layer or glaze all over the inside. Melt it into the plaster in the center of the palatal portion and leave a thicker layer at the posterior margin, and on the inside of the labial-buccal flange. While yet warm as patient can bear it, insert and press *firmly* to place. When cool, remove. You now should have as tight-fighting an impression as the mouth will stand. This should be poured without painting, as the wax will not adhere to the cast. The cast will not need scraping. If a good plaster impression is to be considered as the proper thing to tie to, then all the wax you can get to stay on the inside of the flange and across the posterior part of the palatal portion should be considered, to make the impression just that much better or tighter fitting. In other words, you bring the pressure to bear on the places where desired by placing of wax instead of scraping the cast, which is a very unscientific procedure. I will admit that the wax will not always do just as you would like to have it, but it is an easy matter to rewarm it and try again. This is to me, in some cases, a great help, and I trust it may prove so to you.—DR. L. L. PASTON, *Summary*.

THE FIELD FOR PORCELAIN INLAYS AND THE CAVITY PREPARATION THEREFOR.

Our profession has known recurrent epochs of wide-spread adoption of some single theory or practice to the exclusion of others. A panacea and a specific it was held until time disclosed its limitations and its deficiencies, as well as its scope and efficiency, and it received its just rank among the methods at our command.

Time was when cataphoresis was a title of two-thirds of the papers published and clinics given. "Electro-therapeutics" was "the only way." Long and serious discussions went on as to whether the process was electro-physical or electro-chemical, and now the profession does not care a rap which it is.

Every up to-date practitioner spent his money for an outfit and it occupied a conspicuous place in his office, and now it either reposes beneath the dust in some remote obscure spot or hath been traded in for something else of more utility. Much was the money wasted, many were the pains inflicted, and little was the good accomplished. So, too, even yet.

For over a year past the journals have teemed with articles on inlays, and as often as one scanned the clinical programs did porcelain inlays, porcelain restorations, ceramic contours, etc., meet his eye. Symposium after symposium; long and weighty discussions were waged over the relative merits and demerits of low and high-fusing porcelains; of gold and of platinum matrices. The profession was swept with another tidal wave of enthusiasm of a new epoch-making method that was destined, according to its devotees, to supplant all other methods of filling teeth. But, alas, tidal waves cause disasters and this one was no exception. The wave-crest has passed, and as it ebbed, left many wrecks for our sorrowful inspection. And the same level-headed practitioners have been learning some very valuable lessons from them.

The discussion has shifted from the comparatively unimportant points of high or low-fusing body and gold or platinum matrices to the more important, the fundamental problems,

THE FIELD OF THE PORCELAIN INLAY AND CAVITY PREPARATION THEREFOR.

There can be no doubt that porcelain inlays are and will be a factor in the practice of dentistry; but at the same time their scope is limited as is that of the other methods, and it has come to fill its proper place in company with them and not to displace them.

Much harm has been done by the radical principles promulgated by the optimistic enthusiasts to whom I accord, however, full appreciation of their value as an impulse to the advancement of knowledge. Glibly, they proclaim that teeth can be better and longer preserved by porcelain fillings than by fillings of any other materials; that "their use solves at once and for all time the much-mooted question of 'extension for prevention; because they are so compatible' "; that "they may be used anywhere that cavities exist"; that "their scope is limited only by the ability of the operator"; that "if you believe in inlays at all you must believe in them everywhere"; that "pluggers are things of the past, no longer useful instruments, but one with the relics of by-gone practices"; that "the insertion of inlays involves less loss of tooth structure than that of metallic fillings." These dogmas have been preached with such insistence and assurance that many have come to believe that, forsooth, they must be true.

But time, that dispassionate, impartial, inflexible, infallible tester of things, has weighed these statements and found them wanting; has found that all was not fact; that some were absolutely fallacious. In fact, it may be fairly stated that not one of the above "Articles of Faith," is wholly true. Especially is this so of the statement that "their scope is limited only by the ability of the operator"—the ability of the operator is a limiting factor in all methods and therefore need not be considered in the discussion of a special method. "Their scope is limited" and by factors which are beyond the control of the operator.

All scientific investigation of the method considers both the arguments for and against it.

For the porcelain inlay may be argued :

Artistic effect.

Non-conductivity of thermal change.

Reduction of suffering and fatigue to patient and

The reduction of stress and fatigue to the operator by eliminating the condensing and finishing of fillings.

The conservation of sound tooth structure in some cases.

Against it may be said :

It is brittle and lacking in that essential quality, "edge strength."

Its insertion in some cases involves extensive loss of sound tooth structure.

It is very difficult of removal should trouble ensue.

It is set in a medium upon which fluids of the mouth have a disintegrating action.

We have frequently heard at dental gatherings the question asked of some noted inlay advocate : "Doctor, do you ever put in any gold or amalgam fillings now?" And the noted one shrugs his shoulders and says : "Oh, yes, sometimes." "Where, Doctor?" And the noted one replies : "Where an inlay is not indicated," and that ends it.

There is a crucial point of this whole subject. Where are porcelain inlays indicated and where are they not? Is there any sharp definable line that marks the limits of their field? Yes, "exposure of the margins to the stress of mastication."

WHERE PORCELAIN INLAYS SHOULD BE USED.

Except in the anterior teeth, where, on account of the conspicuous situation, artistic effect is as great a consideration as any other, porcelain inlays should never be placed where the margins are exposed to the stress of mastication. The observation of skillful practitioners of sound judgment, who have watched these things, demonstrate that the slight washing out of the cement at the margins which is incident to all inlays set with cement, leaves the brittle margin of the inlay unsupported so that it chips off under the direct stress of mastication, leaving the cement still more exposed, with the result that more of it washes out, leaving more unsupported, brittle porcelain margin which further chips off and so the process of destruction and disintegration continues to its usual end.

Furthermore, the element of time must be considered in certain cases.

In the occlusal class of cavities and the buccal fissure cavities, gold fillings may be inserted in about the time it would take to fit a matrix, and in cavities of the "pit" variety where an inlay simply could not be inserted.

Frequently, in compound proximo-occlusal cavities in bicuspids and molars, the mere cutting away of frail walls and of carious dentine and enamel gives the cavity a general retentive shape, requiring but very little cutting in certain places to complete the cavity preparation for the insertion of gold, while cavity preparation for an inlay would mean either extensive cutting away of sound tooth structure or a very extensive wedging, both uncalled for and unjustifiable.

And a gold filling properly inserted as regards cavity preparation, protection of pulp against thermal shock, adaptation, condensation and finish, is as good a preserver of the tooth surface in which it has been placed as is the finest inlay that could be inserted.

If the pulp has been protected against thermal shock, gold is as "compatible" (in the accepted meaning of that term) as is porcelain. If one persists in asserting to the contrary, then one must also assert and demonstrate that there is some chemical action of or from the gold itself on tooth structure that has an inimical effect. And no one as yet has been so daring or so foolish as to make such a statement.

The writer has seen too many gold fillings that throughout years have been and are still protecting and preserving the surfaces of the teeth in which they were placed, although the mouths have continually been in a susceptible condition, to believe that recurrent caries is ever due to anything inherent in the gold itself.

Cavities whose inaccessibility precludes the adaptation of the matrix, and whose location does not demand extension, are also regarded as outside the field of the porcelain inlay.

Pulpless teeth with cavities involving the greater portion of the coronal surface should be crowned.

But even these limitations leave a very large field for the wise application of the porcelain inlay :

The proximal, proximo-incisal and labial cavities of the incisors.

The extensive labial, buccal and lingual cavities of all teeth.

The extensive complex cavities in molars and bicuspids when conspicuous.

The incisal third of vital teeth especially in the young.

A field which should be large enough to satisfy the most ardent advocate of porcelain inlays, and the sooner they all admit its "metes and bounds" and confine them to it, the better it will be for both the public and the profession.

Extravagant claims often result in great discredit, and of this porcelain inlays stand in danger now.

Modern science demands that we endeavor not to disfigure when we repair.

The esthetic effect in conspicuous places has grown to be practically paramount to the factor of permanence.

So we feel justified in advocating porcelain inlays.

A BOULEVARD TO A MICROBE.

"But," queries some one, "how can you claim them permanent fillings when the real fillings—so to speak—is a film of cement which we know by experience is not in the mouth a permanent material ; disintegration is bound to occur and a crevice formed which will be a nucleus for recurrent caries?" And so logically and theoretically it would seem. But right here we have a striking example of how theory and reality may differ. The disintegration does occur and the crevice does form to a certain depth equal about to the width of the crevice, but unless exposed to the stress of mastication there is no further disintegration, the crevice does not increase in depth and strange to say that although a crevice does form, that, however slight it may be to the eye, must be a most spacious boulevard to a microbe, "recurrent caries" is not manifested. Why? There is no satisfactory explanation.

There are many instances where porcelain inlays have preserved the surfaces in which they were inserted years before, although the mouth has been susceptible and caries has occurred in various parts of the teeth. In the joint between inlay and tooth no cement may be visible to the eye, but it may be seen by examining it with a magnifying glass. Furthermore, we have many instances of crown and bridge-work in which the facings or plate-teeth have been cemented to, or in, the metallic backing and the cement has stood for years without disintegration beyond the slight amount which occurred shortly after the tooth was set.

The result is analogous to that familiar one of the combination of brick and mortar; the brick the permanent, the mortar the temporary filling. Experience teaches us that properly-placed, constructed and set porcelain inlays may be considered permanent. And yet the recent experiments of Dr. Poundstone, of Chicago, yield results which theoretically cause us much uneasiness. He found that some cements, like amalgams, undergo a continuous physical change for a period of time after they were supposed to be set and permanent.

He found that some cements, when squeezed to a thin film under pressure, never properly set; were porous and had little or no cohesion or adhesion. And finally he found that the thinest film to which he could squeeze cement under a pressure of 25 pounds maintained for a period of hours, was from 20 to 30 microns thick, averaging about 25.25 microns, which is equal practically to 1-1000 of an inch. So that conclusively disposes of the claim that the use of gold foil 1-1000 of an inch thick results in such a close fitting inlay that all of the cement is actually forced out at the margins or that the beveling of the cavity walls to an angle of 45° or more, results in an inlay which, by grinding a bit off the bottom, allows you to force it into the cavity until the margins of the inlay and the walls of the cavity are in actual contact, all the cement being forced out of the joint and no opportunity being given for the formation of a crevice. In making this last statement the writer is forced to retract a belief that he has previously held and argued. It has been demonstrated that even if the maximum force be applied for a maximum period of time there will, nevertheless, be a cement film about 1-1000 of an inch thick. Still, as affecting the permanency of the cement layer between inlay and tooth structure, the experiments were not absolutely conclusive, as they were not conducted amid modifying environments identical with those in the mouth and as such a thing seems practically impossible, the evidence of clinical experience must still be considered as very important, and such evidence warrants us in regarding as permanent porcelain inlays in their proper field.

The permanency of a porcelain inlay, as of any other inlay or filling, will depend almost entirely upon the continued integrity of the margins. And as porcelain is lacking in "edge strength," the character of the marginal edges must be most carefully considered. Indeed, this may be regarded as the most important phase of cavity preparation. But, consideration must also be given to retentive form, instead of depending solely upon the adhesive power of cement, if the inlay is to be exposed to any stress ; and sufficient depth of cavity must be obtained for sufficient thickness of porcelain, to insure structural strength and to avoid structural defects in construction, for thin veneers of porcelain are very difficult to fuse without developing flaws. * * *

INLAY MARGINS.

Inlay margins should have as nearly a right-angle section as is possible to obtain with walls that are divergent, for strength, for structural perfection and for color effect. Furthermore, it simplifies the manipulation in the construction of the inlay, and reduces the danger of fracturing the margins in forcing the inlay to place in setting it.

In general, it may be stated the mechanical principles involved in this system of cavity preparation are those of inclined planes and reverse curves so combined as to give the retentive shape, it being necessary to move the inlay in two directions at the same time to remove it.

Frequently this results in exposed cavity margins which does not harmonize in contour with the general curves of the contours of the teeth. This would be objectionable if the line of demarcation between filling and tooth structure were plainly noticeable, but inasmuch as there is no apparent line of demarcation between a porcelain inlay and that of the tooth structure, the question of contour of cavity margin for esthetic effect is eliminated. Furthermore, if there be any adjacent tooth to which the inlay can be built in strong contact, this system of cavity preparation makes it impossible for an inlay to drop out of the cavity even if it should loosen, a most important consideration ; for many a spendid inlay has been thus lost, which could have been easily reset.—DR. J. E. NYMAN, *Summary*.

THE PRACTICAL PLACE.

QUICK PICKLE.

Place work in a glass and nearly cover with hot water. Pour in as much pure sulphuric acid as you have water, and by this time your piece will be clean.—DR. O. MARTIN, *Review*.

To Clean Slabs.

To remove hardened cement from cement slabs, rub slab and cement with aqua ammonia. The cement is readily removed by this and then the slab can be cleaned by washing.—*Summary.*

To Stiffen a Platinum Pin.

Platinum, and platino-iridium at times, are too weak for posts, whether plain or threaded. To strengthen and stiffen either, flow over the entire surface a thin layer of eighteen or twenty-carat plate or solder.

To Prevent Engine Cord from Slipping.

A little beeswax and rezin applied to the engine cord will prevent it from slipping. Try this the next time you are without a rubber rim.—Dr. R. M. Pearce, *Review.*

[Or wind the pulley with a rubber band.]

Soap Your Casts.

I recently noticed an item in one of our journals, setting forth a method of keeping plaster from adhering to a vulcanite plate. The author's plan was to burnish tin foil on the model and then soap the foil. A more perfect fit can be secured by not using the foil. Secure good hard casts, and then soap them. The plate will not show the gloss and will fit perfectly.—*Digest.*

A Good Filter.

It is occasionally desired to filter mixtures and solutions, and to this end the asceptic napkin, single or double, answers the purpose admirably. If a still finer result is wanted, a piece of cottonoid may be placed between two napkins. This combination yields the solution in perfection, and the upper napkin saves the filtrate, whether formerly held in suspension or as a precipitate.

To Precipitate Gold from a Solution Containing Other Metals.

Make the solution thoroughly acid by either nitric or hydrochloric acid. Then add from ten to one hundred cubic centimeters commercial formalin, according to quantity; the action is hastened by gentle heat; pure gold in crystalline condition is completely precipitated and separated from a solution also containing mercury, zinc, lead, tin, etc.—Prof. F. J. McInnes, *British Dental Journal.*

HOW TO DESTROY BURS.

To destroy burs and other good cutting instruments, use them to remove the remains of old cement fillings or the cement contents of a shell or banded crown. Picking a hole in a corundum wheel will not effect the purpose in much less time. Grits should be used to sharpen tools, not to dull and destroy them. But cement must be got out, and to this end tools must be used, even to their destruction. To save the greater part of your cutting outfit for its legitimate purpose, set aside a few burs and excavators for edge-destroying work. It pays in that it saves in more ways than one.

CAVITY LININGS.

For the lining of cavities preparatory to filling, many things are used, mostly gums and resins, as damar, balsam, copal or lac, in alcohol, ether or chloroform, with or without an antiseptic in minute quantities. These are excellent for the purpose, and the purpose is a good one, provided the worker is reasonably discreet in the application of the solution. The error made by the inexperienced is in the too generous use of the adhesive; they dope the cavity till the walls glisten like a mirror. This is radically wrong; it is abusing a good thing. If the user will simply keep in mind the fact that *any* is enough, he will have the quantity just right every time.

TO HOLD CROWNS WHILE POLISHING.

Cut a pine stick to fit the crown loosely, coat it with shellac by heating both in a flame, then force it into the crown previously filled with a mix of salted plaster, and it is ready for the buff. To remove the crown heat in a flame, and with a napkin to protect the fingers, pull it from the stick. Lac on the stick prevents the wood from drinking in the water of the plaster, and when heated makes the stick easy of removal. The salt hardens the plaster immediately, and the heat generated in the buffing and that of the flame perfects it, and as a final result the plaster comes away in scales, leaving the inner surface of the crown as clean as when first made ready for the polishing process.

TO DESTROY YOUR MUFFLE.

Discard trays of whatever kind, placing the work—inlay, crown or bridge to be soldered, tooth to be fused to platinum pin or band—on the bottom. Something will sooner or later slop over and the dealer will greet you with—"Twelve dollars, Doctor. Shall I send it down?" He sends it "down." To postpone this little matter, sprinkle the bottom of the muffle with coarse silex, and on this place a fireclay tray, thin but otherwise of generous proportions, and in this tray the work to be soldered or fused. Result: The old muffle still as good as new; the further use of a number of hard-earned dollars; and the assurance that you have not been credited with language that good men say sometimes endangers one's everlasting soul.

COVER FOR OPERATING-TABLE.

I use for my operating-table a cardboard cover glazed on both sides. After the first patient this is turned over, and after the next it is discarded, and a new board placed on the table. I have these boards cut to the size I wish, and find them very inexpensive, as they cost only about fifty or sixty cents a hundred. By the use of them I am assured of a clean surface on which to lay the instruments.—DR. G. A. MAXFIELD, *Cosmos.*

The Drs. Requa (Rochester, N. Y.) have long used heavy white blotting paper cut to fit the table, the rim or moulding on one side of which (and this is the strong point in their favor) is removable to permit the passing of the sheet into grooves cut in the moulding to the right and left, and at the opposite end. When the removable part of the table is in place the edges of the sheet are hidden and the corners made to "stay put."

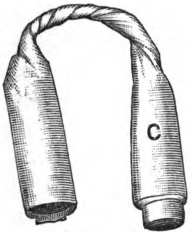
TOOTH HAD WORMS.

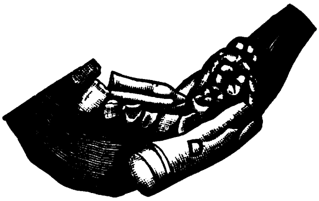
The Chinese dentist is said to use a forcep, one handle of which is kept loaded with larvæ that somehow, during the attempts at extraction, fall into the beaks of the instrument and are afterwards lifted out at so many "cash" per worm, the number depending on the financial resources of the patient, and his willingness to part with his money.

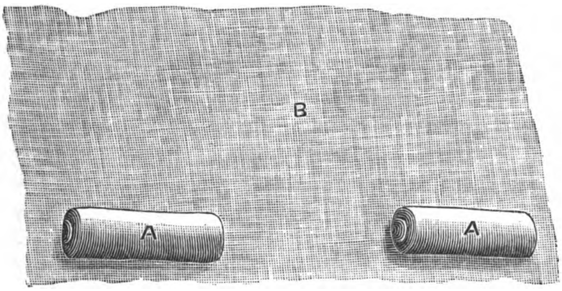
The notion that worms are responsible for toothache is by no means confined to the "heathen." We call to mind a case, related years ago in a Western New York meeting, in which the speaker averred that he had recently extracted a tooth, and until he could otherwise dispose of the thing placed it on the window sill. Later he picked it up and to his great surprise he found a worm—"a veritable maggot" in the cavity of decay. This was interesting, especially to "a grave and reverend senior" from "up state," who was something of a cross-examiner. He asked: "Doctor, do I understand that you had placed this tooth on the window sill?" "Yes, sir." "Do you call to mind the contents of the cavity; was there putrescent matter there?" "Yes, sir; and a putrescent pulp, too." "What time of year did this occur?" "August last." "Any blow-flies where you live, Doctor?"

Napkin and Roll Combined.

The aseptic napkin and cotton roll are always at hand, and methods of cutting, folding and conveniently placing are known to all in practice. The combination herewith illustrated calls for more or less of a six by six napkin and two (in some cases but one) sections of cotton roll. These sections (*a*) are laid on the napkin (*b*) an inch or less apart and rolled to the upper or farther margin. That part of the napkin between the rolls is then twisted and bent, as in *c*, and applied as in *d*, where it is held in place by the fingers of the help-hand or by a clamp. The napkin holds the rolls in their proper relation to each other and to the teeth; the twisted portion does away with the ever-annoying bulk of material crossing arches that are teeth-filled.







BUTTON YOUR CEMENT.

Color schemes supplied with cements are like the samples of colors sold with porcelain bodies and enamels, in that they approximate the finished product made from the contents of the bottles. The manufacturer has yet to live who can make a batch of cement that will duplicate in color—to say nothing of fineness of power, exact proportions where two or more powders are used, specific gravity of liquid, manner of mixing, time of setting—the batch made six months before. The materials may be from the same source, the preparation of them according to a prescribed formula, the bottling by the same persons, and yet there is a difference. It may be only the difference between yesterday and to-day, and yet it is there. If the difference is too slight to be appreciated so much the better; in practice it will go without comment or criticism. These things being true, it behooves the user to make a button from the contents of each package as he opens it for use, keeping it for comparison with teeth to be filled with material from that particular parcel. To make the test final a part of the surface of the button should be dealt with as fillings are treated in the mouth,—cut, filed, ground, taped, etc.,—and just before making the test wet in water. This last places the button under conditions that later modify the finished filling in the mouth.

NOTE AND COMMENT.

COMPLIMENTARY?

The patient hadn't been in the office of his dentist for several months, therefore readily noticed the electrical and other additions to the dental armamentarium. Observing further, he remarked: "Doctor, if you make many more additions to your outfit you'll have to supply your patients with a guide-book to the chair."

"NO ARGUMENT."

A fellow practitioner who occasionally has spells of philosophising, closed his part of a little discussion with the managing editor of a great daily with the remark: I'd rather die a couple years too early than an hour too late." "I don't quite catch on." "Why, an hour too late would give me more than time enough to make a damphool of myself." "That's no argument," promptly replied the editor; "I make a damphool of myself every day."

TO SOME OF OUR QUOTERS.

If you see it in THE DENTAL OFFICE AND LABORATORY, and it is not credited to another periodical or a contributor thereto, or both, it is *ours*. It may be a fact, or merely a restatement or new version of that fact, but the credit should appear just the same. It may be spring-fever that makes us feel this way, nevertheless we are getting a bit "touchy" about certain very small matters. It may give us a pain over "McBurney's point" if we have to speak of this thing again. "If it please you, Sir, spare us."

PLATE AND SOLDER OF THE SAME CARAT.

In his review of a book on matallurgy recently issued, Dr. Trueman questioned even the desirability, to say nothing of the necessity, of soldering plate with gold of a lower carat than itself. Knowing that he had good reasons for this view, and a knowledge of materials and methods to bear him out in his contention, we wrote him to favor our readers with an article on the subject in detail. This he has kindly done, and we commend it to the study of those who would have their work look as if soldered with a part of the plate itself,—in fact, as if solder had not been used.

WOULD YOU BE ETHICAL? PIN THIS IN YOUR HAT.

In her "Recollections" of her father, Edwin Booth, which includes a rich gathering of letters to herself and many of his personal friends, and which every lover of the man and the stage of his day, and largely of his building, should read, Mrs. Edwina Booth Grossman says he would often quote to her when a child:

"If your lips you'd keep from slips,
Of these five things beware:
Of whom you speak,
To whom you speak,
And how, and when, and where."

NO "EDITORIAL DEPARTMENT, AS SUCH."

The *Register* for January has the following among its announcements for the current year: "We shall continue our several departments as at present, with the exception that we shall drop the Editorial department, as such, and substitute for it a department under the heading of "Event and Comment." This is as it should be. It takes away his stilts, of course, and lets the editor down among his fellows, but it gives him a wider swing in his discussion of persons, places and things. The readers of the *Register* have noticed the change already; they appreciate it, too. "All things come to those who wait," and there shouldn't be much waiting for several others to follow this good example.

THE SOCIAL SIDE.

To those worthies who would crowd themselves in where they are not wanted, and who are craven to that degree that they would always "If it please you, Sir," we commend the following from an old libretto, by Gilbert:

"With a view to rise in the social scale,
He shaved his bristles, and he docked his tail,
He grew moustachios, and he took his tub—
And he paid a guinea to a toilet club—

"He bought white ties, and he bought dress suits,
He crammed his feet into bright tight boots—
And to start in life on a bran new plan,
He christened himself [a dental] Man."

"SURE!"

"*Separation,*' the article by Dr. J. P. Root upon this subject published in a recent *Western Dental Journal*, has been copied by * * * *The Dental Office and Laboratory.—Western.*"

True, O King! And many another article, wholly or in part, from the same source, every one of which has been credited to its author and to the periodical in which it first appeared. This excerpt suggests that the Editor of the *Western* has not been dealing justly by himself of late, in that he has found but one of his good things in our pages. It pains us to speak of these matters, but duty impels us. That water is thinner than blood and fiction only a distant relative of truth need make no difference. We overlook that. But THE DENTAL OFFICE AND LABORATORY, of all professional periodicals, should be read by dentistry's upmost and best, to the exclusion, if necessary, of their editions de luxe of the late William Shakespeare, or the "*Rubberyacht of Mary McCann.*"

PARTON'S "RULES" FOR WRITING.

James Parton, well known to a former generation as a disguished lecturer and writer, in a letter to Mr. Alfred R. Conklin, who was about to write a biography of his uncle, the late Senator

Roscoe Conklin, gave the following rules which he invariably followed himself in the preparation of his work for the rostrum or the press. They apply with equal force to writing done by men of other callings and for other purposes: "My great rules," says Parton, "are 1st: To know the subject thoroughly myself; 2d, to index fully all the knowledge in existence relating to it; 3d, to determine beforehand where I will be brief, where expand, and how much space I can afford to each part; 4th, to work slowly and finish as I go; 5th, to avoid eulogy and apology and let the facts have their natural weight; 6th, to hold back nothing which the reader has a right to know."

GET BUSY, MR. EDITOR!

Some of the recent issues of several of our "esteemed contemporaries" contain examples of the efforts of the letter-perfect stenographer that are simply fierce. Unable to discriminate, this gentleman holds tenaciously to the specific work he is engaged and paid to do, and reports the speakers word for word, whether what they say makes for sense or the lack of it. And what a mess! Is it to be wondered at that some men, conscious of their shortcomings as on-the-spur-of-the-moment debaters, hesitate to take part and actually hold their tongues? They feel in duty bound and are willing to add their mite; but they know from observation and experience that they will not be given the opportunity to touch up their remarks; and they know further, by the same token, that the editor, whether secretary of the society or literary head of that body's favorite periodical, will more than likely fail to do it for them. The majority of speakers need to be saved from themselves, and it is the business of the editor to make their salvation complete. Their remarks may be tommyrot, which is not infrequently the case; but if they appear in print at all they should appear in English that is at least readable. The reader, too, should be considered; his is the right to reports that are not more than two-thirds torture. Twelve-year-olds would be dropped a grade if guilty of any one of the offences now in mind. It is up to some editors to forego "Editorial" now and then, and do a little editing. That, by the way, is what editors are for.

A "PEACE" MEETING.

That was "a meetin' what is a meetin'" held in New Jersey not long since. For the first time in their professional careers many heard that diabetes is not a disease, but merely a symptom of disease; that Bright's disease is not a disease, but, like diabetes, merely a symptom of disease; that pyorrhea is not a disease, but a symptom only; that it is invariably syphilitic in its origin; that it is inherited oftener than it is acquired.

They also heard some other things—things that grate harshly on the ear and serve now and then to disfigure the pages of an otherwise good book. An earnest man with a message was characterized as a "quack"; and the words "lie," "belied" and "liars" were thrown about as if such things had no commercial value. It was the time of his life for the fellow who loves to sit on the fence during the progress of a scrap; who delights in self-manufactured human misery; who goes to the caucus merely for the fun he fondly hopes to get out of it. When New York's present District Attorney first spoke in his own behalf for votes, he asked: "And what will our opponents do with you if you elect them to these important offices?" From the back seats came the answer: "They'll fry us." "Yes," replied the ready Jerome, "They'll fry you, you bet; and they'll do it in your own fat." The timely break-up of the meeting in question undoubtedly saved several of those present from a similar fate. The frying was well under way; the fat forthcoming.

THE PASSING OF THE HAND-EXCAVATOR.

Agents of supply houses carry burs by the peck, which means that burs are in great demand. In quantity, quality, size, form and finish they more than meet the requirements of the purchaser; but who except the oldest of operative dentists has ever heard the virtues of the hand excavator extolled by these everywhere present and always-busy men. Time was when these most useful of cutting instruments were to be seen in depots and on the road by the thousands, and their good points were published to the dental world as the end of the law in steel. Now, however, if one would have a cutter of this class he must ask for it, and great is his disappointment on learning from inspection and inquiry that forms once indispensable and easily had have passed even from the memories of the men who designed, made and marketed them. There was a time when excavators did it all; to-day they merely supplement the bur.

And this suggests that the inordinate and unnecessary use of the bur is responsible for most of the torture complained of by the long-suffering occupants of the chair, and the grudge they cherish against the dental engine. Few of our patients hesitate in their answer as to which they prefer, the machine-operated bur or the hand-manipulated excavator. Without a doubt we use the bur too much; we use it when and where it is not only unnecessary but undesirable, whether from the view-point of the patient or that of the operator. It fails utterly in many cases where the hand-excavator measures up fully to the necessities of the case. Why not revive interest in and rehabilitate this most useful of accessories? Further delay may relegate the instrument and skill in its use to the list of arts that have been lost.

DR. JOHN R. FRAILEY.

DIED FEBRUARY 20TH, 1905.

With the death of Dr. Frailey there has passed one of the sterling old-time dentists who have done so much to help make Philadelphia the home of Dental Science.

Entering the profession in the early sixties of the past century, he for many years enjoyed a large and lucrative practice, until approaching age induced him to relax his efforts and take life more easily.

He was a fine workman, honorable and conscientious; of a social and happy temperament, which made him a host of friends. He was a close reader and student, with a retentive memory, and would occasionally commit his observations and experiences to writing. This journal had the privilege, some years ago, of publishing a few of his communications.

A pathetic incident of his decease was the death, also, of his devoted wife two days after his own. They were laid away together, after a happy married life of nearly fifty-one years.

His family was well and favorably known in West Philadelphia, his birthplace and home for so many years, and there are many who will miss his bright and cheering presence.

MEETINGS.

From Secretary E. N. Bigham we learn that the Mississippi State Society will meet at Jackson, April 18th to 20th inclusive.

Secretary W. M. Randall, of the Kentucky State Society, writes us that the next annual meeting of that body will be held at Lexington, May 15th and 16th.

The eighth annual meeting of the Southern branch of the National Association was held in Memphis, February 21st to 23d inclusive. The announcement came too late for insertion in our January issue.

The New York State Society will meet at Albany, the 12th and 13th of May. The district societies tributary to this body are perfecting arrangements for their annual gatherings. As there are eight of them in the State, it means that a goodly number of men are at present on the road for papers and clinics. To escape some of them the man with an idea will have to watch out.

BOOKS.

A TEXT BOOK OF DENTAL PATHOLOGY AND THERAPEUTICS. By Dr. Henry H. Burchard. Revised by Dr. Otto E. Inglis.

Through some unaccountable stupidity on the part of our book reviewer we failed to mention the name of the publisher of the above. We hasten to amend his work by stating that it is from the house of Lea Brothers & Co., Philadelphia and New York.

ORTHODONTIA AND ORTHOPÆDIA OF THE FACE. By Victor H. Jackson, M.D., D. D. S. Seven hundred and sixty original illustrations. Pages 517. Price $5.00, Philadelphia and London: J. B. Lippincott & Co.

In preparing this splendid work for the profession the author has given concisely and systematically, yet necessarily in great detail, a complete description of his methods of correcting irregularities of the teeth, also an original system for the orthopædic treatment of the face. Much experimental work preceded the devising of the system as we now have it, the essential features of which are the securing of anchorage by means of spring-clasp attachments and spring clasps which support a base-wire to which springs of any form can be added.

A few well-known methods, some of which antedate the author's system, are introduced for the purpose of assisting practitioners already familiar with and using them to bridge over the time and experience necessary to their acquaintance with the system which the author has made peculiarly his own.

As the system stands it includes many changes and modifications of appliances put to excellent use in his earlier practice. Simplicity and practicability characterize these changes throughout.

Some fears have been expressed by certain practitioners, who have never put the Jackson system to the test, that the anchorages are insufficient; they have no faith in appliances that are not screwed or cemented to the anchor teeth. But to those who have seen appliances built according to this system in place, who have seen patients remove and replace them, who have done this themselves for some of the author's patients, and who have used these appliances according to his instructions in their own practices, —these fears are groundless. The anchorages are secure or easily removable at the option of the patient, if prepared with that object in view; but they never break away if properly made and adjusted.

The several chapters are devoted to etiology, the alveolar process, occlusion and articulation, examinations, records, impressions, models of teeth and casts of the face—photos of a number of which are to be seen throughout the work. Age is considered, also the much discussed question of extraction. Anchorage and appliances are as a matter of course given their full share of space. Wedging is briefly considered. Expansion and contraction of the arch, the moving of the incisors labially, laterally, lingually and on their own axes, their elevation and depression, prognathism, the moving of the cuspids, bicuspids and molars, and their retention during osseous fixation, by removable and fixed appliances, complete the list, with one exception, of the subjects by chapters into which the book is divided. This exception is the brief but interesting chapter on the general orthopædia of the face.

As already stated, the illustrations are in the hundreds; the full-page plates of specific appliances are particularly attractive and instructive.

In Jackson's "Orthodontia and Orthopædia of the Face" we have the results of years of thought and labor. The system—the methods and appliances, and the application of them in effecting changes in the position of the teeth, in the size and form of the jaws, and in the contour of the face—has withstood the test of time; the distinguished author has seen the great work of his life accomplished, and shares with his friends the rare privilege of looking upon a most fitting monument of his own building.

The publishers have put the work before the dental public in the best possible shape; it may be fitly described as a model of dental text-book making.

WIT AND HUMOR?

Thoughtful Boy (contemplating newly-arrived sister): "But, Mamma, she must have wasn't before she was, didn't she?"—*Ex.*

Bacon—Do you think there's any luck in having a rabbit's foot?
Egbert—No; nor a hare-lip, either.—Yorkers *Statesman.*

"See 'Everyman,' Doctor?"
"No; did you?"
"Yes; then 'Babes in Toyland' to take away the teast."

The world stood still not long since when a famed naturalist gravely announced that the primary function of the curl in the tip of a dog's tail was to enable the fleas to loop the loop.

Professor (looking for fun): "Johnny, what time is it by your nose?"

Johnny (bootblack with chums around): "Mine ain't runnin'. Is yours?"—*Lippincott's.*

Israel Putnam—"Fire when you see the whites of their eyes."
Admiral Dewey—"When you are ready, Gridley, fire."
Admiral Rojestvensky—"You may fire when you see them spit on the bait."—Baltimore *World.*

A man interested in his rod and line drew his handkerchief carelessly from his coat and at the same time pulled out a prized set of false teeth which fell into the water. A sudden "ker-chew" was heard and then the other in muffled accents exclaimed: "There goes mine, too!"

"The trouble," said the dentist, as he probed away at the aching molar with a long slender instrument, "is evidently due to a dying nerve."

"Well," groaned the victim, "it's up to you to treat the dying with a little more respect."—Chicago *News.*

With somebody's apologies to the great hymnologist, Doctor Watts:

"When dire misfortune's storm assails
Your person or your purse,
This consolation still is yours;
It might have been,—a damned sight worse."

THE

Dental Office and Laboratory

FOURTH SERIES

VOL. XIX. PHILADELPHIA, MAY, 1905. NO. 3.

DISSOCIATIVES: THEIR USES IN THE OFFICE AND THE HOME.

BY J. EDW. LINE, D. D. S., ROCHESTER, N. Y.

[Read before the Rochester Dental Society, March, 1905.]

What goes up must come down; what is brought together must sooner or later tear itself, or be torn, asunder. In other words, it must dissociate itself or be dissociated. The material or method, or both, effecting this rupture thus becomes a "Dissociative." Its work is seen in the breaking off of hitherto friendly relations between the powers; it is seen in the temporary or permanent division and subdivision of a people, as in our own country in the sixties; it is seen in the affairs of the Daughters of the Revolution, in pedro clubs, and now and then it even threatens the cohesiveness of the Rochester Dental Society. But dissociatives political, social, economic, literary or scientific are not now to our purpose; but rather those that make for sanitation of the oral cavity, for the comfort and convenience of the dentist in the office, and for the dental health of the patient at home;—dissociatives that may be boxed or bottled, that are always at hand, that may be easily and quickly applied, that are effective in every instance.

A few years since it was our good fortune to aid in an amatuerish way in the study of a water-supply, in a manner chemical, but chiefly biological and photographic. The chemical part developed only to the degree required in the observation of the lower forms of life under the microscope, and the photographing of such forms both before and after treatment.

It happened about this time that the water-supply in question became offensive to both the sense of taste and that of smell. The former failed to get a name,—it was merely characterized as "bad;" the latter was spoken of as "fishy," and forthwith classed with odors given off at times by other diseased water-supplies and known to water-supply physicians as the "cucumber odor," the "pig-pen odor," etc.

While this work was on, an engineer of national reputation, in a learned and somewhat exhaustive discussion of the subject, dropped the remark that the addition of common salt to a diseased water invariably intensified both the taste and odor, particularly the latter.

Having had some experience with salt in the study of animal and vegetal tissues, attention was again given to this phase of the subject, but this time with special reference to the determining if possible of this abnormal increase in offensive-taste and offensive-odor producing agents. It had already been determined that the general source of this offensiveness was vegetal growth and development or vegetal decay,—some said both.

Collections of filtrates yielding micro-organisms in abundance gave out odors that were pronounced in their badness, both as to smell and taste; and it was found that the addition of a little salt effected an appreciable increase in both. With matter freely floating the difference was hardly appreciable; but with that that had massed and matted the difference was great. The conclusion seemed to be warranted when observing the behavior of these masses under the microscope that the increase in offensiveness was due to the greater surface exposed; further, that this result was brought about by the dissociative effect of the salt.

The dissociative effect of this and other substances is seen in the bath, soap and sulphur acting probably in a chemical way; sand soaps in ways both chemical and mechanical. The oily matter is removed and the epithelial cells are lifted from their anchorage. Salt, soda, potash do all these things and the product may be seen in the bran-like matter forming an almost unbroken sheet or layer on the surface of the water.

In the microscopical study of milk the beginner is greatly annoyed by the tendency of the fat globules to heap themselves to that degree that their individuality is lost, and the masses thus formed completely obstruct the light. A drop of sodium chloride solution corrects all this by disintegrating these lumps and spreading the milk globules evenly over the field. In fact, the difficulty later is to bring them into contact; association is out of the question in the presence of a dissociative.

When blood is placed upon a slide and brought under the lense the conditions are similar—the red corpuscles are heaped upon each other and the white lost among the red. The addition of a dissociative effects the even spreading of the lot over the glass, which makes it possible to sort out one or more individual corpuscles for special observation.

Fibres of tough tissue like the cornea, the sclerotica, tendons and fascia, etc., are loosened from each other. So, too, with masses of vegetal matter, whether found in a water-supply or in the oral cavity; the dissociative not only tears things apart and from each other, but it effects through rupture and otherwise the discharge of the contents of cells of vegetal origen, and may under favorable circumstances perform the same office for certain cells from animal sources.

The specific agents that bring about this state of affairs are numerous and are chiefly from alkaline sources, and the few always within reach meet the requirements to perfection. The kings of salines, sodium chloride, and the alkalies, sodium carbonate, potassium carbonate, ammonia, etc., leave nothing further to be desired. The first has a permanent place on the table, the second in the kitchen, and all four in the laboratory; they are easy of access to all concerned, whether dentist or patient; they are inexpensive, and this perhaps is the worst thing that can be said of them.

How dissociatives work may be a question. Probably first as solvents, as when masses of organic matter or organized bodies are held together by a glue-like or gelatinous adhesive. The solution of this glue-like substance, this adhesive, by which the individual components are bound into one, is acted upon in such manner that disintegration sets in, and the mass falls to pieces as if by its own weight. In other cases where the component parts are only up against each other, massed by pressure and held together by the irregularities of their own surfaces, or where they are interwoven like straws in a bundle, the disintegration is due primarily to imbibition, to the amount of the dissociative drunk in, or drunk out as in the blood corpuscle; and secondarily to the tendency of the component parts to assume the spherical form. Whatever the explanation the result is the same and none the less to be desired.

IN THE OFFICE.

Making direct application of dissociatives should be ot hourly practice in the office. In the mere matter of making examinations we sometimes find the saliva thick, ropy, viscid, stringy. The fingers and instruments draw it out in threads to the annoyance of both patient and operator. A glass of water containing a dissociative like common salt sweeps this away on the instant.

Then there is a saliva even more common than that just mentioned—the kind that under the motions of the lips, cheeks, tongue and lower jaw, is churned into froth. In extreme cases the patient's mouth suggests the use of soap unto the formation of suds. It is in these mouths that spaces between the teeth and cavities of decay fill with bubbles that make it impossible to determine whether the places are round or square. Every bubble, and sometimes there are many of them in a single cavity, acts as a lense, distorting beyond the possibility of recognition. A jet of dissociative breaks up these bubbles and forthwith gives one a clear view of the cavity and its surroundings.

As the preparatory step to the removal of tartar, stain and other salivary deposits, the dissociative comes into play. A little in a glass of water strips the teeth of the sheet of organic matter with which they are usually, and in some cases normally, coated, enabling the operator to bring the instruments into direct contact with the teeth. The stick, buff, rubber-cup and pumice used to complete the operation are given a better chance and effect a quicker and more satisfactory result. The early removal of this organic matter increases the friction, adding to and otherwise favoring the work of the things just named.

As a preliminary to the adjustment of the rubber dam the dissociative comes to one's service. Salivas that are thick and viscid, and teeth that are heavily coated with organic matter, in spite of recent brushing, are very offensive when thinly spread, as on the surface of the dam, which greatly favors rapid oxydation. This can be helped materially during a long operation by the use of a dissociative just before the dam is applied. This precaution also effects another purpose—it cleanses of organic matter especially the tooth or teeth about to be operated upon. What this means will be appreciated by those who, in the midst of a time-eating contour, have let a foot-shaped instrument slip across the face of the tooth and omitted to cleanse it by heat or other means, until reminded of the oversight by their failure to make the next bit of gold stick.

In grinding stumps for crowns and cavities for inlays the wheels and burs of grit as used ordinarily become clogged with organic matter, chiefly from the tooth itself, and to that extent that the operator must needs stop to free them by means of brush and water. This is made unnecessary by the use of our dissociative, salt or its equivalent. Dipping the wheels or gem points into a little of the solution frees them at once of the objectionable and obstructive material, restoring to them their original cutting property.

In arranging teeth in the mouth, for crowning purposes, a bridge or a plate, one soon learns to value the dissociative's help. Immediately on removal from the mouth the piece should be dipped into water containing salt, soda or potash, then in water to rid it of the chemical. One has a cleaner thing to handle and a firmer grip on his work because of the bath.

Plaster impressions, also those in wax and modeling compound, and the material used in getting the bite, are usually slime-smeared and often offensive to the sense of smell, and always greatly in need of cleansing. Immersion and swashing about in the bath just mentioned restores them to their pristine condition.

The same thing may be affirmed of plates left for repair.

Grinding sections for microscopical study clogs even the largest and coarsest of wheels with organic matter from the tooth,—puts it in condition that suggests a coat of wax or vasaline. Its cutting power is *nil* in this condition, but is restored quickly and continued by the generous use of soda during the grinding process.

The waste from the fountain cuspadore often fouls. This calls for a disinfectant; but disinfectants are not solvents for everything,—they may lack the important property of disintegrating, loosening the sheet of organic matter with which the tube is lined. Soda, salt, potash, or ammonia does these things, baring or making naked the surface that would otherwise escape the direct action of the disinfecting agent.

IN THE HOME.

When it comes to the patient the dissociative is particularly efficacious in cleansing and paving the way for powders and washes. Many use the washes only; others, powders; others still make good use of both. But in the case of the patient with thick, viscid saliva; of the patient whose saliva froths; of the patient afflicted with pyorrhea, the teeth are protected against these partially-cleansing agents. The good that is in them is expended on surfaces that are oily, greasy, and withal tenacious. Some of the antiseptic washes are solvents in a degree; others actually coagulate. The real work therefore is left to the mechanics incident to the use of powders and the brush. Brushing first of all with a dissociative, tempered to the heat requirements of the teeth, removes this organic sheet that we have harped upon to tiresomeness on the part of the listener, and renders every surface vulnerable to teeth-cleansing devices and medicaments. It should not be necessary perhaps to use anything but water for the purpose in question; but the exigencies contingent upon living in a civilized way are such as make the use of other and more active agents imperative. The best of these are made better by the forehanded application of a suitable dissociative, the best of which from general standpoints is common salt. Its many-time-daily use by the dentist in and about the office, and by the patient in the intervals between visits for professional overhauling is "a fine habit."

HER VALENTINE.

By "One of Your [Dr. W. D. E.'s] Victims."

You say to us "Please take the chair"
    And, unsuspecting, we
Do as we're told, but little dream
    What torture there will be.
You place a rubber o'er our mouth
    And fasten it with care;
Then someone comes, you stand and talk
    And leave us sitting there.

You go to work most carefully
    And say, "O, that's not bad,"
"Now tell me if it hurts you much,"
    Or, "Why are you so sad?"
When all at once you strike a nerve,
    Your task has just begun;
We writhe in fiercest agony,
    You smile and think it fun.

You cut, you slash, you probe, you pound
    Till we cry out with pain,
Then you will rest a little while
    But to begin again.
Our heads grow sore, our ears grow deaf,
    The tears come to our eyes;
But you work on, relentlessly,
    Nor heed nor hear our cries.

Our fiercest pain is your delight,
Our toothache makes you glad;
Our misery, your happiness,
You're joyous when we're sad.
You make "*impressions*" now and then;
Of names your books are full;
You move within the "*upper set*"
Because you have a "*pull.*"

But when we suffer untold pain
And know not what to do,
You'll find that we, invariably,
Are glad to turn to you.
And though perhaps it pleases you
To toss our heads about,
We find you are an evil which
We cannot do without.

So when you reach that dizzy height,
With wealth and great renown,
I think you will on that glad day
Deserve a golden "*crown*;"
And we, your friends, will all unite
To honor one so great,
And order up a banquet
And serve you a "*full plate.*"

You surely cannot take offense
At any words of mine;
I simply write what I am told
By old St. Valentine.

EFFECT OF THE MIND ON DIGESTION.

In a recent number of the *Journal de Psychologie*, M. A. Mayer treats of "The influence of mental images on secretions," and concludes that it is especially important in the case of the digestive fluids. We quote below a few paragraphs from a notice of M. Mayer's article in the *Revue Scientifique*. Says the writer:

"It is a matter of common observation not only that tears may be provoked by memory or even by fiction, but also that the sight or idea of food may 'make the mouth water,' which means that it produces an increase of the salivary secretion by reflex action. The glands, in fact, like the muscles or the capillary blood-vessels, have their nerve-terminations. * * *

INFLUENCE OF SIGHT—ALSO MENTAL IMAGE.

"The influence of the perceptions on the saliva has been clearly shown by the experiments of Malloizel and Victor Henri, who have studied directly in the dog the secretion of the submaxillary gland. The sight of food was found to provoke even a more abundant secretion than its ingestion; and, curiously enough, the nature of the saliva is adapted not only to the kind of food taken into the mouth, but even to the element perceived, when its nature is not unknown to the animal. The sight of salt provokes a clear liquid secretion, while with meat there is obtained a very viscous, thick liquid. And not even perception is necessary. A pure mental image provoked by association will suffice; if one is in the habit of carrying food or sugar in the pocket, the act of putting the hand in the pocket will provoke a secretion of saliva. And if two dogs are looking at each other, it is only necessary that one should be eating meat to cause the same flow of viscous saliva in both.

STOMACH AFFECTED—INTENSITY VARIES.

"Pavlow has made special experiments on the stomach. The odor of food also provokes a secretion there. He has also studied the influence of taste by an ingenious artifice. * * * and has proved that when a dog swallows small pebbles, salt, balls of starch, or an acid liquid, the glands of the stomach remain at rest, while, when meat or sugar is given to it, an immediate flow of secretion is evident. * * * The intensity of the secretion varies with and is proportional to the pleasure provoked by the food. A dog that prefers cooked to raw meat has an abundant secretion when he is allowed to eat the former, and a very slight one when he is made to eat the latter; and the introduction of an article of food that is displeasing to him is sufficient to stop the secretion.

"The character of the animal also plays its part in the intensity of the phenomena, and Pavlow notes that certain dogs are not excited by the sight of food because they are of a positive and cold temperament. * * *

"The importance of these results must be acknowledged by every one. They show how important it is to eat food that is agreeable, and to avoid what is unpleasant, in order that proper digestion may take place."—*Literary Digest.*

FIELD OF USEFULNESS OF THE OPEN FACE CROWNS.

Unquestionably the objections urged against open-face crowns are well founded. At their best they have elements of weakness difficult to overcome. Nevertheless, properly made and properly placed, they have a field of usefulness all their own. Upon bicuspid teeth I have found them satisfactory and durable, especially so in cases which admit of the open face being entirely open. When the bar connecting the two sides at the gum margin can be dispensed with, the sides can be made to spring apart as the crown passes over the tooth, and to embrace more closely the tooth-neck when it is in place. The peculiar shape of the canine and incisor teeth not only increases the difficulty of making the crown fit accurately, but it also hampers us when cementing it in place. We miss the piston-like action of the tooth which assists so much in forcing the cement solidly into the intervening space when a full crown is pressed into place. Not only does the cement escape through the open face, but the screw-like motion necessary when manipulating it into place so displaces the cement that a thorough and compact filling of the space between the tooth and the crown becomes imposible. As a natural result the cementing is imperfect. To so shape the tooth as to avoid this would, in many cases, result in so serious a mutilation that devitalization and excision might be preferable.

In a recent English dental journal a suggestion is made that perhaps may have practical value. The writer suggests, instead of mutilating the tooth, to build it up at the neck by first fitting to each side of the neck of the tooth a piece of thin gold plate; to hold this in place one or two small holes are drilled through the plate and extended a short distance into the tooth into which pins are fitted and soldered to the plate. Plate and solder are now added in sufficient amount to give the tooth a desirable shape and filed to conform to the contour of the tooth. These are polished and cemented in place. When the finished crown extending over these additions is in position, there is no risk of their being displaced. Carefully carried out, this expedient seems promising, and is well worth a trial.—DR. WM. H. TRUEMAN, *Brief.*

ABOUT HONES.

In the selection of the hone, size, grade, uniform density, keen abrasive action, free from hard or soft spots or other imperfections, and a flat or level surface should be required. One of the most essential requisites a hone should possess is its dimensions, and should not be less than six to eight inches in length, one and one-half to two inches in width, and from one to one and one-half inches in depth, the larger size being preferable. Any dimension less than indicated will prove a plaything, and impractical in honing many forms of instruments. Oil stones are graded as hard, medium and soft, each grade having its special merit. The harder varieties being slower in their abrasive action, the softer more rapid; more skill and time are required to hone on the hard than on the softer grades. The Arkansas stone has many qualities desired in a hone for dental instruments, from extreme hardness to the softer and more abrasive action. The slow abrasive action of the harder varieties is useful in honing the smaller instruments, or such edges as require only a minimum amount of honing to be put in order.

The Turkish stone is one of the best for rapid and smooth execution, and in many respects superior to the Arkansas stone. Is seldom to be found on the market.

The finer grades of the Washitaw stone, is free from hard spots or streaks, which they are quite liable to have, is rapid and smooth in its work and, if well selected, approximates the Turkish stone.

The Arkansas, Turkish and Washitaw stones are essentially oil stones. While water may and is often used as a lubricant, the hone is kept in better condition and better results obtained when oil is used for lubricating.

An imported water hone manufactured in Austria, and known as the Franz Swatey stone, is exceptionally good for the finest edges of knives, lancets, etc.

If but one hone is to be used the medium grade will prove the most practical. The hard and medium qualities will have their daily demand. Oil stones improve with age if kept clean and well lubricated and deteriorate if neglected and allowed to dry out for any length of time. A good grade of oil stone will take up oil till fully saturated, when it is in its best condition. If not cleaned after use the oil becomes thickened, forming a coating on the surface, holding particles of steel which become imbedded in the stone and any attempt to hone on a stone in such condition will result in more of a burnish to the edge than a free cut, and skillful honing cannot be done on a dry and dirty hone. If not in daily use the stone should be left clean or simply moistened in oil. A thorough soaking or cleansing of oil stones is occasionally necessary. Kerosene oil is often used and recommended, while it cleans well, in time hardens a stone and changes its quality. [Kerosene may be put down as one of the most destructive of applications to oil stones.] A saturated solution of caustic potash in water is preferable. Care in its use is necessary, from its caustic action and poisonous nature. As a lubricant sperm oil is considered the best for edges. Resurfacing a stone is necessary whenever any concavity of the surface or other defacement is observable. A coarse grade of emery or sand-paper secured on a flat surface, the stone used as a plane, reproduces the surface, using the finest grades of emery- or sand-paper for the finishing. The stone should be clean and free from oil previous to resurfacing, and in use securely fastened in good light and convenient to the chair.—DR. B. BANNISTER, *Summary*.

HOW WE HEAR OUR OWN VOICES.

That a man does not hear his own voice as all the rest ot the world hears it is shown by an interesting experiment described by Dr. L. Laloy in *La Nature* (Paris). Says this writer:

If a person records on a phonograph a few sentences pronounced by himself, together with others by his friends, and causes the machine to reproduce these at the end of a brief period, it generally happens that he easily recognizes his friends' voices, but not his own. On the other hand, the friends recognize his voice perfectly. This singular fact proves that everyone hears his own voice differently from others.

As is remarked by Professor Exner, the difference must lie in the quantity of tone. It must be remembered that one hears his own voice not only through the air, as do his auditors, but across the solid parts situated between the organs of speech and those of hearing. The sound thus produced has a different *timbre* from that conducted to the ear by air alone.

We may show this as follows: Take the end of a wooden rod between the teeth and pronounce a vowel continuously. Let the other end be alternately taken between the teeth and released by another person, who at the same time stops his ears. The latter will find that every time he seizes the rod in his teeth, the sound becomes stronger than when it reaches his ear through air alone, and has a different quality. The experiment may be varied by applying a wooden rod to the larynx of the person observed and touching it, from time to time, to the observer's own larynx. As in the preceding case, it will be found that its passage through a solid body augments the intensity of the sound and modifies its quality.—*Literary Digest.*

NEGLIGENCE—ON THE PART OF THE DENTIST, THE PATIENT, BOTH.

For a dentist to dismiss a patient without having scaled and cleaned that patient's teeth is by no means a rare occurrence.

This dentist may be a conscientious man and aim to give patients his best service and yet overlook this important little duty.

Another dentist may not realize the importance of removing concretions especially where the teeth are not heavily coated, unmindful of the fact that destructive influence does not depend so much on the amount of deposit as upon its distribution and location.

Then there is the dentist who never gives a word of advice to patients regarding personal care of the teeth. * * *

Again, the dentist who does not look after the hygienic conditions when making fillings, by restoring the proper contact points and contour and consequently the interproximate space, and occlusion, is not doing his whole duty to his patients.

Then there is another dentist who well knows the results of allowing deposits to remain on the teeth and yet wilfully leaves them there. His excuse is that if he scaled and cleaned the teeth for the patient he would feel obliged to do it for nothing and he could not afford to give his time to such service.

I dare say that every man here has heard some dentist express himself in this manner.

After a patient has selected a dentist and resigned the care of his teeth to that dentist, he takes it for granted that the dentist will give them every attention possible for their preservation. And this patient has the right to expect the best care from that dentist. What think you then of a dentist who will, in the face of this implicit trust, wilfully leave the the teeth covered with foul deposits that are menacing not only the teeth, but adjacent tissues, and possibly the health of the general system itself?

We have nothing but condemnation for a physician who wilfully keeps his patient sick as long as possible merely to extract more fees, or who, when the patient has partially recovered and yet needs a tonic to put the system again in a healthy state, fails to supply that need as though he were in hopes the patient would again fall ill within a short time.

Yet, how much better is the dentist just cited? Answer for yourselves.

The patient may be neglectful about carrying out instructions given by the dentist and thus have the consequences to suffer.

Or, both dentist and patient may be at fault. For instance, a dentist may be ever so conscientious in scaling and cleaning the teeth, and to the best of his ability impress his patient with the importance of daily care of the mouth, teeth and gums, and yet the results prove disappointing through neglect or non-thoroughness on the part of the patient and its non-discovery by the dentist for six months, or a year, or two years, when that patient happens to again return to have his teeth examined. He then probably finds more decay, possibly the undermining of some of his last fillings, the presence of calculus and other deposits about the teeth, and the resulting pathological conditions of the gum tissues.

He performs needed dental operations, rescales and cleans the teeth and dismisses that patient again with more good instructions and advice, but that which is most vital in keeping of the teeth and gums in a state of thorough and constant cleanliness is neglected and the result, in consequence, is again failure.

Now this dentist may, with all candor, believe he has fulfilled his mission and done all that he could for the welfare of that patient's teeth, and with this dismiss the case entirely from his mind.

But has he done all that he could to further a constant state of cleanliness in the mouth of that patient? I maintain that he has not.

While what he did was the best that he could do at the time, he did not carry to completion the duties he owed that patient, assuming, as he did in accepting the patient, the welfare of his teeth.

Aside from all that he did and advised he should have exacted that that patient return to him in three or four weeks that he might determine whether the teeth were receiving proper and constant care. And when that patient returned, if found that his teeth were being neglected, the dentist should have so informed the patient. The dentist should have then rescaled and recleaned the teeth, not forgetting to make a charge for the work, and have made another appointment for that patient to again return in four ot five weeks to have the teeth re-inspected.

A few such visits and admonishings will do much toward inducing patients to give their teeth regular and thorough attention and the dentist will have done his duty and fulfilled his obligations to those patients.

Could patients be induced to return once in every four or five weeks to have the teeth thoroughly cleaned and polished, a custom followed by some dentists, the tissues of the mouth and teeth would be kept in the best hygienic condition, carious action be less apparent, and the dentist would have rendered the best services possible to his patients.

For such service the dentist is entitled to a fee commensurate with the time consumed, the same as though performing any dental operation. And I am sure the majority would willingly pay for such service if its importance could be thoroughly impressed upon them.—DR. L. P. BETTEL, *Summary.*

SOFT FOOD A SOURCE OF CARIES—ADENOIDS A DIETETIC DISEASE.

"Mr. J. G. Turner [British Royal Institute of Public Health], called attention to the fact that soft food was a fruitful source of caries in young children, starch and sugar, which undergo acid fermentation, being specially harmful and preparing the way for bacterial attacks on the dentine. He advocated hard food as a preventive of caries, insuring mechanical cleansing of some parts and flushing of others by saliva. At the same meeting, Dr. Harry Campbell read a paper on the same subject. He dwelt upon the great importance of giving children their starchy food in a form compelling adequate mastication. He drew attention to the fact that not only were digestive disturbances occasioned by soft food, but the maxillary apparatus not being exercised adequately did not develop properly, neither did the nasal passages, nor the nasopharynx. The teeth were apt to be irregular and to decay early, and the child became the victim of adenoids. That the latter was a dietetic disease the speaker had no doubt. Dr. Campbell advised that hard, solid foods should be given at the age of seven months, when the infant should be allowed to gnaw at chop bones and chicken bones and to eat hard, leathery crusts, biscuits, sugar-cane, and certain fruits. In this way the child learned to masticate by instinct, and not till then should a limited quantity of the softer farinaceous foods be permitted. Throughout childhood, concluded the speaker, the bulk of the starchy foods should be in a form which would compel mastication, since that not only favored the development of the nasal passages and naso-pharynx, but further insured buccal digestion."—*Medical Record.*

PRACTICAL THINGS THAT COUNT.

Operating tables may be kept in a neat, presentable condition by using blotting paper covers. Such a cover will absorb all moisture from instruments and cotton pellets and prevent the spreading of drops of medicines. They may be readily changed when soiled and are cheap. The bracket table should be provided with a receptacle for waste cotton pellets and dressings instead of allowing them to be strewed around the chair and floor. A good receptacle can be made from a colored glass pomade jar into the top of which a star is cut. The points of the star will engage the cotton and clean the points of the pliers quickly. The jar may be scalded out and kept clean and free from odor.

The use of clean operating table covers and cotton receptacles will eliminate a great deal of the disagreeable odor so common to dental offices.

A small piece of pure soap will be found useful in many ways during operations. The mouth mirror may be kept from clouding by coating the glass with dry soap, and then wiping clean with a dry napkin. The edge of a sandpaper disk will not catch in the rubber dam, when polishing fillings, if it is first run in the soap. Disks and strips will cut faster and polish better if slightly soaped, on the grit side, before using. Disks and strips thus prepared, that are used for polishing gold fillings, will retain the particles of gold, and if saved and refined will more than pay for the trouble. Rubber dam will slip easily over the teeth if soaped around the holes. Ligature silk when soaped slips easily between the teeth. Use pure soap and sparingly and it will not be disagreeable to the patient.

The excising of a natural crown of a tooth, when a dowel crown is to be used, may be done with a square reel cross-cut enamel fissure bur, gauge No. 1, cutting through the tooth at right angles to its long axis and following closely the gingival border of the gum. By this method little grinding of the root is required and laceration of the gums is avoided.

A Richmond or any banded dowel crown may be removed by slitting the band and drilling between the root end cap with a square drill until the pin is reached and passed a little to one side. The pin may then be cut with a cylindrical cross-cut bur. This will allow the ready removal of the cap and give direct access to the root for the removal of the balance of the pin.

When impressions are to be taken, note all conditions of the mouth carefully. If a thick, viscous saliva be present it may be overcome by rinsing the mouth thoroughly with milk of magnesia. The adhesion of the impression material to the teeth may be prevented by coating them slightly with vaselin or by rinsing the mouth with milk of magnesia just before the operation.

When working with wax in the laboratory, use a large common school slate for a bench cover; it will catch all pieces and drops of melted wax and when removed leaves the bench clean and ready for the next work. Wax spots on a bench may be very annoying when gold work is being done.

A small brush wheel with a single row of moderately stiff bristles is excellent for polishing around plain teeth in vulcanite work. If wet soap is applied to the bristles they will retain the wet pumice and cut like a knife. Soap rubbed on a felt buff wheel will retain the wet pumice, causing it to cut much faster and considerably lessening the time and labor of polishing an artificial denture.

Plaster models of orthodontia cases, etc., may be hardened and given a marble-like surface by boiling them in stearin. The models must be thoroughly dry before putting them into the boiling stearin. Use a double boiler, like a glue pot, for melting the stearin.

The light of the operating chair may be very much improved in the late afternoon or on dark, hazy days by using white linen curtains as reflectors. The principal one is an ordinary roller shade fastened at the top of the window casing. The curtain to be the full width of the window and of sufficient length to allow of its being drawn out over the operating chair, above the operator's head, and attached to some fixed point in the wall or screen. The spring in the curtain fixture, if left uncaught, will be sufficient to keep the curtain taut. This curtain, with its glazed white surface sloping downward and backward from the top of the window opening, will direct the rays of light onto the operating field instead of permitting them to be dispersed into the room. The system of curtains may be carried much further to good advantage. Broad white curtains may be attached to brackets swinging at right angles to the window frame and adjusted at an angle that will direct the light rays as desired. By this means the operating chair may be easily and quickly inclosed in a box having white reflecting sides. The dead white of the curtains seems to soften the intensity of the light so that it is not unpleasant for the patient and causes no particular eye strain on the operator. The use of curtain reflectors has enabled me many times to continue operations without the aid of an artificial light, which is such a terrific strain on the eyes of both operator and patient.—DR. F. C. BRUSH, *Brief.*

SEA WATER—BROUGHT MUCH OF IT WITH US.

In M. Quinton's view, sea water is the natural source from which, as Haeckel believes, those elementary bodies have their rise, which in turn develop into every other species, human beings included. The environment in which the anatomical elements of living creatures exist is neither more nor less than a marine one. Our tissues and cells continue to exert their functions in a fluid the composition of which presents the closest resemblance to that of sea water. Hitherto the number of elements entering into the composition of a living body has been considered to be about 15. But the researches of M. Quinton have shown the existence of traces of at least some 14 other elements which are also found in sea water, such as copper, lead, silver, gold and others. Further, if an animal be bled to exhaustion and the place of the blood be supplied by sea water, on the morrow the animal will have regained its strength, and at the end of five days its recovery is complete. M. Quinton has injected into animals a quantity of sea water greater than their own body weight without any toxic effects, whereas an injection of pure water rapidly brings about death. Sea water, then, appears to be the true nutrient fluid of animals, their natural plasma in fact.—*Lancet.*

GOLD INLAY WORK.

In building and contouring I am in the habit ot using 22-karat gold, such as is ordinarily used in making gold crowns. The clippings from such work may often be used to good advantage. Cut pieces in sizes and shapes according to the case in hand. Have each piece fluxed, being also careful to avoid an excess of this material. Usually small pieces are first adjusted into the deeper depressions, upon which are successively placed as large pieces as will fit the surface without bridging over too much, until finally one or more pieces, which extend from margin to margin, may be adjusted. Then, if a rounded contour is desired, shorter pieces may be successively used from this point. It is a process of piling up a framework or skeleton of these pieces to be filled in and covered with the solder. Any contour desired may readily be secured by piling up properly shaped pieces.

It is my habit before using solder to cover the surface of the matrix as well as possible with the pieces before mentioned and using as broad pieces as can be adapted. By careful observation of these details we are able to avoid any shrinkage. After placing as many pieces of high-grade gold as will stay securely in place, distribute properly-shaped pieces of 22-karat solder at such points as will permit a free flowing under and around the pieces.

In using the blow-pipe avoid applying the heat too suddenly upon the gold. Heat the investment thoroughly first, directing the flame gradually toward the gold, and just as the various pieces of solder are about to fuse throw the heat to the part desired to flow first and then to the other parts. Add the pieces of high-grade gold and solder in the manner described until the inlay presents the proper contour and surface. Immerse in acid and dress it down with suitably shaped wheels, discs, etc., being very careful to grind toward the margins to avoid injuring them by tripping ; also, allow the wheels to barely reach the margin.

Now the under surface must be roughened. If, as is often the case, there is a lining of cement over the floor of the cavity, the inlay may be invested in plaster in an inverted position and sharp spurs turned up with an excavator, some of the cement being cut away to accommodate them. If the cavity is without this lining the surface may be roughened by drawing a sharp excavator over the surface repeatedly, or by drilling small holes or carefully filing slots in the surface. Occasionally, in cases where it may seem desirable, a hollow space may be left by first adjusting a concave piece of platinum foil or pure gold (concave side down) upon the floor of the matrix, avoiding the use of flux on the under side and on the matrix at this point. This creates a cavity which the solder will not enter.

The building of the inlay may then be continued as before described, and when finished the space may be opened liberally through the matrix. Upon insertion this space is filled with cement, thereby greatly increasing the retentive strength of the inlay and practically eliminating its conductivity.—DR. C. H. WRIGHT, *Review*.

SOCIAL RECOGNITION.

Location, geographical location, must be taken into consideration when considering social recognition. In central New York, where for some years I resided as a school boy, there were many descendants of a lot of "Vans," who a century or so ago emigrated to this country, their baggage consisting of a feather-bed, a sharp knife and a few traps. Their blood was of the ordinary arterial variety, full of red corpuscles, to keep them in a healthy condition while hunting for pelts during the cold winter. These fur-peddlers, by shrewdness in bargaining with the innocent, guileless Indians, gradually accumulated the outer garments of bears, foxes, and other denizens of the forest, which they traded for corner lots in New Amsterdam. These good, honest Dutch emigrants prospered, as any frugal, energetic people will. They passed away, leaving behind a lot of descendants, who dominate this section because of their blue blood, and so-called "blue blood" is a good name, for blue blood can be classed as "venous blood," a poor quality of arterial blood, lacking the life-giving red corpuscles. Now why any sane man should whine because he for lack of wooden-shod ancestors cannot obtain social recognition from this element is beyond me.

Let us go up in Yankeedom, which was settled by a hardy, religious band of men and women driven out of England on account of their religion, who landed at Plymouth Rock, and scattered over the barren hills of this section and began to eke out an existence raising cobble-stones on their fertile fields, an industry still followed by their descendants who were unfortunate enough to remain at home. There were some wooden-shoe blood in this community which was not satisfied with cobble-stone crops. They desired "social recognition" for their descendants, and to obtain the means, went out into the briny deep and sought the succulent codfish, which they manufactured into codfish balls and cod-liver oil; the balls were first sold to inhabitants of the cobble-stone hills as a developer of liver complaint, and they then sold the oil as a sovereign remedy to build up broken-down constitutions or stone fences. Their descendants naturally acquired blue blood and roam at will on Boston Common. The codfish ball and oil business becoming overdone, some of these hardy pioneers migrated to the hilly portions of Connecticut and organized the business of manufacturing wooden nutmegs with which the multitude could ornament their milk punches. Prosperity followed until the nutmeg forests of Connecticut were devastated; then they retired and began developing blue blood for their descendants.

In later years the unfortunate ones who were overburdened with good healthy red-blood corpuscles, seeing no opportunity for themselves or their descendants to break into the different "four hundreds," went west; some started packing-houses, others located on corner lots and awaited developments; they prospered and started a little "four hundred" of their own. Thus it is all over this great and glorious country of ours. Every locality has its aristocracy, which, according to some of the disgruntled writers, seem to devote most of their energies to keeping some poor dentist out of the sacred circle. * * *

Social life costs money, and outside of rural districts the income of a dentist is hardly sufficient to keep him in the social swim—that is, if he keeps up his end; of course, if he is constituted as a sponge, and can refrain from being squeezed, he may by arduous labor retain all he absorbs. This requires more tact than most of us are blessed or cursed with.

To break into the K. S. K. (the Kold Storage Koterie) one must have ancestors or money; the latter is a possession not acquired in dentistry. Ancestors we all have, but not always of a variety to be mentioned in public, yet there are in existence business firms who for a proper consideration can supply any form of ancestry desired. Their fees are high, and my advice to the ones who from lack of ancestors and money are barred from social recognition is to form an Ancestors' Club, having weekly drawings until all members are supplied. Then, if you have no other qualifications, make your attempted break for social recognition.—DR. J. P. ROOT, *Western.*

PORCELAIN CEMENT—A NEW MATERIAL IN AN OLD FIELD.

Diverging from inlays for a moment the writer desires to speak of a combination material, porcelain and cement, that is being brought to a reliable state of perfection in Chicago which bids fair to be an important feature in porcelain work in certain cases. When mixed up to a putty-like condition it may be pressed between the end of a root (and quite irregular shaped one, at that) and a Logan crown, for instance, selected and pin-fitted, and allowed to harden. As soon as it is hard the crown with cement is taken away and trimmed and then baked. Some shrinkage takes place, and to remedy that, a little more of the cement is added and again pressed to the root. When this is removed and baked as before, it is usually an absolutely perfect fit to the end of the root. If not, a little layer more is added and again pressed to the root and removed as soon as it is hard, and again baked. Adjusting further is rarely needed but crown is ready to set. The mix that has been added is as hard and dense as the crown itself. It has been used to make an entire molar crown that fitted to the irregular root or broken-down tooth like an inlay. Pins may be baked in it, if needed, to extend into the root. The color is a yellowish white (or any shade desired), but it has no translucency like porcelain and yet as a molar it looks very much like some teeth found in some mouths that are dull and opaque ; and certainly when carved up to natural shape it looks very natural. The bulk of a tooth may be made of it and then may have a porcelain veneer baked over it, bringing it to a more life-like appearance.

This cement-porcelain is very sticky until hard, hence oiling the root or part to which it is applied, to get an impression, is necessary. If root is to be banded, it must be done before using this material, and impress taken with band in place.

Now, posterior teeth inlays can be made of it by pressing the mix into the prepared cavity and molding it as desired before it hardens. It then may be removed and baked; then refitted with new material added, and again trimmed up and baked ; and the third time if necessary, or until the shrinkage has all been taken up. The material is very strong and tough, in bulk, and it certainly bids fair to make a good filling, or inlay, rather, for posterior teeth, and it may be veneered with porcelain if desired. The substance is not yet on the market; but as many practical tests in the mouth have been made, it no doubt will soon be found available, as it has proven very satisfactory up to this date.—DR. R. B. TELLER, *American.*

THE DOG IN THE MANGER.

Police regulation is proper enough, but it should not put up a barb-wire fence to keep out men who can present credentials of eminent qualifications together with the advantages of practical experience. In international, national and interstate and other societies and conventions, representative of the best element in dentistry throughout the country, practitioners from all quarters meet and recognize each other as the legitimate and qualified men of the profession at large. There may be wholesome rivalry and differences of opinion on the subjects up for discussion, and here and there a man may be cheerfully acknowledged as having risen superior to his fellows along some line, or even in a general way, but in all rights and privileges and in the general recognition every man is the peer of every other. In such a gathering, too, there are usually men from various states who have been specially invited and honored on account of well-known ability and high professional standing.

But let one of these recognized men of ability in these censored societies and conventions, from the State of New York say, attempt to locate in Colorado, or vice versa; or go from Illinois to Arizona or North Dakota and other States to practise, and immediately he may be challenged and discredited. His diploma may be A1, and other credentials of the highest order. The members of the dental board to which he applies may know personally of his satisfactory professional standing, yet he must submit often to the most exacting and critical examination that can be given, and often with the set purpose of forcing failure upon him if possible,—an examination that not one of that same dental board of examiners could pass without many days of coaching.—R. B. T., *American.*

CLEANSING TEETH—A DESTRUCTIVE FEATURE.

DR. C. B. BRATT:—I think the question resolves itself into friction; the proper amount of friction on the gums. I don't think you can have a healthy condition of the mouth without friction.

The question has arisen in my mind, since Dr. Smith has introduced his liberal use of the pumice, whether that is the proper thing to do, when the conditions are bad.

It may do, but by using the pumice often we destroy the smooth surface, that natural polished surface of the tooth, and when this is destroyed they require scouring with the pumice often, and this continued for several years will show considerable abrasion of the tooth structure.

DR. I. N. BROOMELL :—I think there is one feature of this treatment that has not been properly considered, and that is the results which will follow the treatment in time. Of course it is yet in its infancy, you might say I am not in favor of the method myself. In the first place, because I believe it has a destructive feature. Dr. Smith claims the reverse. He claims that instead of the friction destroying the enamel, it gives it a refoundation, which in my mind is most absurd. I believe also that what the last speaker said is a very bad practice, to instruct the patients to do this work themselves. I can recollect one or two patients of mine that if I were to tell them to do this themselves, they would spend all their spare time at it.

I believe also, that while in the first place this heroic treatment may be beneficial to the tissues, it eventually will be destructive. At any time you are likely to destroy some of the physical fibres of the tissue.—*Summary.*

CRUCIBLES.

The most useful variety ot crucible for dental metallurgical use is the plumbago or graphite crucible. Such a crucible is made of fire-clay and graphite or coke-dust in nearly equal proportions.

These crucibles should be annealed by standing them in an inverted position and gradually warming them for some time. The advantages they possess that recommend them for use are, toughness, infusibility, capable of withstanding sudden changes of temperature without cracking, and not being readily corroded by metallic oxids.

If an earthenware crucible is to be used, it should be "glazed" by melted borax throughout its entire interior, to prevent retention of metal on pouring after melting.

Platinum or iridium are best melted in cavities formed in limestone blocks, into which excavations the oxy-hydrogen flame is introduced.

Iron melting-pots, holding a charge ot from six to ten pounds of metal, are used for fusing zinc, lead, tin, and alloys melting below a red heat. The heat for fusing such metals may be obtained from a Fletcher's solid flame gauze-top stove.

Cupels, or small cup-like crucibles, made of bone-ash (calcium phosphate), are used in processes of purifying silver, gold, platinum, etc. The cupel is obtained by moistening the powdered bone-ash and then compressing it in a mould.—DR. H. H. BOOM, *Stomatologist.*

CHLORETONE IN PULP-REMOVAL.

Apply the rubber dam, fill the hypodermic syringe and force into the pulp the saturated solution of chloretone and ether. When the exposure is large, I take some of the crystals and by pressure, anesthetize the pulp at the exposure, then by using a piece of vulcanite rubber and holding it securely around the needle, succeed in doing the operation without pain. It must be forced into the pulp under pressure otherwise one might as well use aqua pura. After using the solution hypodermatically, one can then use the broach and remove the pulp absolutely without pain, and after the hemorrhage has stopped, immediately proceed to fill the root canals and complete the filling at the same sitting. I have used it the past four years and have yet to have a failure.

It is necessary, in using it for distal and occlusal cavities in posterior teeth, to have curved needles which are easily procured at the manufacturers; the straight needle answering in all other positions. Chloretone having antiseptic properties certainly causes no injury to the root canals.—DR. W. D. BABCOCK, *Register.*

THE PRACTICAL PLACE.

SEPARATING MEDIUM.

A good separating medium is made by dissolving paraffin in gasoline. Put in all that the gasoline will take up. To use, spread solution over impression lightly with a camel's-hair brush.—*Hints.*

SOLDER PILOT.

In soldering often the solder will not flow just where you wish it to go. Take an inch or two of the carbon from a pencil and fasten with binding wire to an old excavator and use to direct the solder when in a molten state.—*Hints*.

DRINK WATER.

Just as a good rain storm cleans out the gutters, so an abundance of water will do great good to a patient threatened with kidney disease. Without this the kidneys are trying to secrete practically mud—urine that is so thick that the kidneys are clogged.—DAWBARN, *Items*.

AN ABSCESS PROBE.

When an abscess appears between two dead teeth it is often difficult to tell which one is deceased. A minute probe made by attaching a small globule of soft solder to the point of a smooth broach will provide an instrument, that will follow the path of the pus, thus pointing to the tooth at fault and at the same time causing no pain to the patient.—*Pointers*.

COMPENSATES FOR SHRINKAGE.

Dr. E. W. Scranton, Rochester, N. Y., fills the matrix of large inlays with body, fuses, and then, to compensate for shrinkage, adapts a new matrix and lines it with freshly-mixed body, into which he presses the already fused mass. The whole is then placed in the furnace with the result that all shrinkage has been provided for and the inlay fits.

PEROXID AND LIME WATER.

The dilution of peroxid with an equal volume of lime water corrects any acid condition that may exist, retards the destructive influence of H_2O_2 on granulations, and does not detract from its efficiency.—*Forum*.

Why not substitute for lime water, which is always of uncertain composition, a small quantity of milk of magnesia, whose composition is fixed and known ?

TO KEEP TEETH IN PLACE WHILE VULCANIZING.

Dr. Frederick E. Webster, of Irapuato, Mexico, sends us the following item :

"To keep teeth from becoming misplaced while vulcanizing, turn the flasks over, nuts down, so the grinding surface of the teeth is down also. If loose while packing, their weight will hold them in place, as porcelain is heavier than rubber. I have practiced this method over ten years and have never had a tooth buried in the rubber or misplaced on the plate."

To Bleach a Tooth.

The quickest way to bleach a tooth that I know of, when it has not been discolored by alloys, copper, amalgam, essential oils or gum resins is by using aluminum chlorid and Labarraque's solution. The next is by using powdered alum and moistening with Labarraque's solution. And the next is by moistening the interior of the tooth with dilute sulfuric acid and then filling in sodium dioxid; and last, but not least, is the 25 per cent. pyrozone method. Pure terebene ($C_{10}H_{16}$) will slowly dissolve oils. It should be sealed in the tooth and the application removed once a week.—Miller, *Cosmos.*

Copper.

Copper points and copper wire has long been used in pulp canal filling. I have met with these after they have been long in position, but do not recall noticing any ill effects upon the soft tissues. There is this difference between copper and nickel: copper is oxydized superficially, and the coating of oxyde formed seems to prevent further action; nickel is absolutely destroyed; this, however, may be modified when it is alloyed with other metals. I have among my curios a full upper and lower denture made of copper that bears evidence of long use in the mouth. The dentist from whom I obtained it reported that it had been worn for a score of years or more, and was discarded only because changes which had taken place in the form of the jaws required a new denture.—Dr. Wm. H. Trueman, *Items.*

Concave Your Inlays.

I take the impression of the cavity, regardless of its location. The larger the cavity the larger the concavity I make in the inlay. After obtaining the cavity matrix it is invested, and a small No. 4 cylinder—either whole or one-half, or one-third, or one-fourth of it—is placed within the matrix according to the concavity I wish to produce in the inlay.

The cylinder must be placed soft, as supplied for filling purposes, and is held in place by the porcelain body itself. The outlines of the core will be reproduced in the shape of a concavity. After the baking the gold is removed from the porcelain with a small excavator. Then, to facilitate matters, instead of a diamond disk I use an ordinary paper disk to remove the glaze of the porcelain, so that the cement may adhere the more firmly.—DR. DA SILVA, *Cosmos*.

DARK PORCELAIN FOR FOUNDATION—GLOSS ON SUB-SURFACE ESSENTIAL TO TRANSLUCENCY.

In connection with the sub-stratums of porcelain it has been the practice of ourselves and a number of our friends on the continent to use a very dark layer of enamel as the base of practically all fillings; it does not affect the color of the various enamels put over them, but you will get something that will exclude practically the reflection, because the trouble is that inlays, to a very large extent, are more or less opaque; as soon as we grind off the gloss underneath to assist in retaining them, in connection with the cement, as well as by the curves we cut in them, we destroy the translucency and make them more opaque. So that by making it darker underneath it enables us to a very large extent to discount the difference that we note between an inlay before it is set and after it is in place with the cement around it.—DR. L. J. MITCHELL, *Items*.

NOTE AND COMMENT.

"TAKE IT NOW."

"Does the world seem growing black,
Play your cards, you'll win your stack;
Liver's probably out o' whack,
Take a trip."

The editor of the *Western* took one recently, and, according to his own telling, feels that fine that he is now doing two days' work in one.

HIS "OTHER DEGREE."

Fight shy of the man who is forever prating about the dental degree as "a badge of partial culture." He is not what he would have you think him, and he betrays himself at every twist in his speech to deceive. The rag he loves to refer to as his "other degree" is generally as cheap as the man on whom it was conferred or to whom it was sold. There are instances in the dental profession where this "other degree" came by means not only unfair, but foul. Never ask him where he got it; above all, never inquire how.

QUACKS IN NEW YORK.

According to a statement made recently by Mr. C. S. Andrews, counsel for the Medical Society of the County of New York, there are 20,000 quacks in New York city. There are fewer than 6,000 regularly qualified practitioners, so it would seem that even subtracting the fifty-five per cent. of the population now receiving free treatment at our charitable institutions, every regular physician could make an excellent living, if the unlicensed competition was stamped out.—*N. Y. Medical Journal.*

From which it would appear, dental speech-makers to the contrary, that members of the medical profession also have their troubles.

WORK FOR THE UNDERTAKER.

As an example of what the letter-perfect but non-technical stenographer can do the following is unique. It reads almost as well as some things that now and then find a place in dental periodicals:

Reference to my recommend. of 1st Chloroform zinc in a Chlorofsol. of Chloride of zinc can be found in Cosmos 1903 page 31. 2d Alcohol in pyorrhea alverlaris (Itennis of Interest 1905, page 63

3d Do not put over an asking pulp.

4th Place incidentally on the pulp.

5th Exact no pressure on the pulp.

6th Never carried into work canals.

7th Take special care of the jimm tissues if the scarcity is near the jinyinal lire

8th Set at remains I he have.

I cannot give you a more minute combination of the Arsenical filiae. Refer to [Blank] who put it up.

My rules for the apple of arsenic are

1st Hot combine with an Eschanotic

2d Never use it injudiciously with at least.

BARRED OUT.

There is no hope of ever getting into the charmed social circle, or of rising therein, for the man who cleans other people, or any part of them,—even their teeth. To clean people is to remove their dirt, and to remove their dirt as such and by its real name is to be forever barred from that which to some of the frail-minded of the profession is quite as desirable as life itself. People should be made to clean themselves dentally, after which the way is open to the professional man to remove calcareous deposits, deep-seated stains, etc., which from the nature of the case is beyond the mere cleansing capabilities of the patient and his limited and inefficient toilet outfit. This is subjecting the teeth to prophylactic treatment! It may be "cleaning" to the public; but to the professional man that word should be unknown, and never used to describe his part of the renovating operation. "What's the difference?" asks someone; "It's only in the name." True; but that's just the difference between a service that suggests the menial and one that can be rendered only by one possessing knowledge and skill beyond the mere application of soap and water. What dentistry needs in this matter is a new word and several derivatives therefrom, that will rid it for all time of such words as "clean" and "cleaning," to describe the professional part of the operation in question. Fellow feeling alone for the socially ambitious should prompt the word-mongers of the profession to give us the terms of which we stand in such sore need.

MEETINGS.

The Missouri Dental Association will meet at St. Louis, May 25th.

The "Lewis and Clark" Dental Congress is down for July 17th at Portland, Oregon.

The Dental Society of the State of New York will hold its annual meeting at Albany May 12th and 13th.

The National Dental Association, Faculties and Examiners, will hold their meetings this year at Buffalo, N. Y. The last week in July is the time.

The next annual meeting of the Executive Council of the Federation Dentaire Internationale will convene in Hanover, Germany, August 7, 1905, immediately following the annual meeting of the Central-Verein Deutscher Zahnarzte. Announcement of the program for the meeting and the projected work for the Federation during the present period will shortly be made through the dental journals and through the official bulletin of the Federation.—EDWARD C. KIRK, Secretary-General.

The Forty-sixth Annual Meeting of the Northern Ohio Dental Association will be held June 6, 7 and 8, at Cleveland, Ohio.

The leading subjects for consideration are :—

Humanitarian Methods, Mistakes, Prophylaxis.

Under the first is considered High Pressure Anæsthesia, by Dr. C. G. Myers, of Cleveland; and High Pressure Anæsthesia as Compared with Other Pain Preventing Methods, by Dr. D. H. Ziegler, of Cleveland.

Essays under the second group include the Mistakes of the Country Dentists, by Dr. R. D. Wallace, Scio, Ohio; Mistakes of the City Dentists, by Dr. F. J. Spargur, Cleveland, Ohio; and Mistakes in Ethics, by Professor S. H. Guilford, of Philadelphia, Pa.

The third includes the Essays: Two Sources of Tooth Life and Their Relative Importance, by Dr. D. D. Smith, of Philadelphia, Pa.; and Diseases of the Peridental Membrane and Treatment, by Dr. J. V. Stahl, of Wooster, Ohio.

BOOKS.

From the author and publisher, Dr. Robert S. Henry, Chattanooga, Tenn., we have received a copy of his Appointment-Register-Day Book. As its name suggests, it answers the triple purpose of registering appointments for prospective work, recording the particular operation performed, and entering the charges for the service. To other than those already fixed in their notions of what an appointment book, etc., should be, it is commended for trial.

QUESTIONS AND ANSWERS, EMBRACING THE CURRICULUM OF THE DENTAL STUDENT. By Dr. F. J. S. Gorgas. Philadelphia: P. Blakiston's Son & Co., pp. 503.

The object of the author is to supply those preparing themselves for a course in dentistry with a work that will answer as a preparatory text-book, and that object seems to have been attained. It is also designed to assist the student in course in his reviews of the subjects usually taught, and, further, in his preparation for examination for license to practice by state boards. The work is divided into three parts and conforms closely with the courses embraced in the freshmen, junior and senior years. It should prove of great help to those for whose use it is specially adapted, also to the man in practice whose knowledge of these things has grown somewhat rusty. An excellent feature of the work is the nearly complete index and subject-index of twenty-six pages. It is handsomely and substantially bound in cloth and costs $5.00.

WIT AND HUMOR?

Just say to all Lunkheads who question your sense
    And hold all your wisdom at naught,
You've been forced to turn knowledge away every night,
    And you've standing room only for thought.—*Life.*

"What's that, Doctor?"

"Nitrate of silver. Why?"

"Tastes like a tin-shop."

He—She has such a little mouth it doesn't even look large enough to hold her tongue.

She—It doesn't.—*Ex.*

"Doctor, I hear that you have moved into the Blink Building. What floor?"

"The twoth floor, of course."

She wanted all of her teeth out, but the dentist disuaded her. "Well, I don't know but you're right; they're a birthday present from mother and besides I'm very much attached to them."

In one class of porcelain bodies platinum is a necessity; in another gold may be used. A fellow practitioner in giving us his idea of the ease with which he manipulated the latter metal said: "Why, my dear fellow, it's like taking candy from a child."

"Doctor, that's an awful bill for one week's treatment!"

"My dear fellow, if you knew what an interesting case yours was, and how strongly I was tempted to let it go to a post-mortem, you wouldn't grumble at a bill three times as big as this."—Chicago *Tribune.*

"Ever been stabbed in the back by a professional man, Doctor?"

"Many times."

"By an ethical or unethical man?"

"Ethical, every time; and in the greater number of instances by a member of my own society."

Farmer Hayseed to his Congressman:

"My wife wants packages of flower seeds and packages of garden seeds. Please send the same to her. Don't send her any canary seed. That might make her want to sing, and the Lord knows I have trouble enough with her now on that score."

"You didn't meet your appointment two weeks ago," said the dentist.

"No; didn't mamma phone you?"

"Yes; she said you had the mumps. Was your face much swollen?"

"I should think it was; I had to go through the door sidewise."

"Simpkins' wife has an abscess on her jaw and cannot talk, can't even whisper."

"I understand that Simpkins is all broken up and will not leave her bedside."

"Now, he ain't broken up at all; he just sits around there listening to her keep still, and grinning like a monkey."—Houston *Post.*

This is told of a Philadelphian whose mother-in-law was alarmingly ill. One night the physician shook his head and said impressively:

"She has got to go to a hot climate. Mind, I don't say to a warm place, but a hot one."

The son-in-law disappeared, but soon emerged from the cellar carrying an ax. Handing it to the doctor he exclaimed:

"Here, you do it! I can't!"—*Lippincott's.*

A Scotch crofter met a friend and said: "Hello, Archie, whaur hae ye been th' while back?"

"Mon," replied Archie, "did ye no ken I was laid doon wi' th' trouble they ca' influenza?"

"No, I didna hear ye were ill," said the crofter. "An' what kind o' trouble is that?"

"Weel, I can hardly explain," replied Archie; "but efter yer gettin' better ye feel very lazy. In fact, ye dinna feel inclined tae dae anything a' day long."

"Mon, mon," said the crofter, "dae ye tell me that? I've been troubled thot way th' last twenty years, and couldna find a name for it.—*Exchange.*

THE
Dental Office and Laboratory
FOURTH SERIES

VOL. XIX. PHILADELPHIA, JULY, 1905. NO. 4.

DESENSITIZING THE TOOTH-PULP BY WAY OF THE DENTINAL TUBULES.

BY J. EDW. LINE, D. D. S., ROCHESTER, N. Y.

[Read before the VIIth District Dental Society.]

The discovery by Spooner that arsenious acid would destroy the tooth-pulp was an epoch-making bit of work in the history of dentistry, and was quickly followed by the application of this agent as an obtundent of sensitive dentine, whether for that purpose merely, as we use silver nitrate to-day, or as a part of the preparation of cavities of decay for the further operation of filling. The later discovery that its action had no limitation short of the destruction of the pulp led forthwith to its discontinuance, except as it is used at the present time and for the same purpose. And it may be of interest to note that the man chiefly responsible for its widespread use as an obtundent was among the first to cry out against further misuse of an otherwise invaluable adjunct to the dental armamentarium. He frankly admitted his error, shouldered his full share of the responsibility, which was great, and used every means within his power, whether of tongue or pen (for he spoke and wrote much and often) to stop those given to the practice and dissuade those quite ready to begin.

GOOD AT TIMES.

Medicaments that merely anæsthetize the terminal ends of the dental fibrils have long played an important part in cavity preparation, and even to-day there are men who pin their faith to and cinch their practice by using chloroform, ether, or one or more of the essential oils, singly or combined, as obtundents of sensitive dentine,—and with good reason. Medicaments that destroy, but only very superficially, still have a place in our cabinets; chloride of zinc is, perhaps, the best representative and most generally used. Medicaments that dessicate—that dry—that rob the fibrils of their water,—have been and are now occasionally made use of to good advantage. Alcohol of high grade and glycerine in its purest form rate high because of their exceptional greed for water.

Heat by means of the directly-applied hot burnisher; a jet of air; hot solutions unaided, or solutions driven home by the heated burnisher or heated air, add materially to the list.

The application of cold, or rather the abstraction of heat, by means of ether or rhigolene spray held sway for a spell, only to be dropped because of the small margin for choice between suffering of the disease and that caused in the attempt at cure.

Cocaine.

To-day, while these have not been wholly displaced, all resort to that best of all-round local anæsthetics (analgesics?), cocaine, or combinations of which it is of necessity the essential ingredient. Applied in aqueous solution it has some effect both on dentine and on the pulp; aided by pressure, continuous or intermittent, as in percussion, it goes to the depths. The same may be truthfully asserted of cocaine and its combinations, only to an immeasureably greater degree, when influenced or reinforced by the electric current.

Cocaine has held its place from the first, the medicament seemingly the thing most desired and needed; but methods and appliances have only recently extended its field of usefulness and made its effects more certain and speedy of attainment.

By Way of the Nose.

A method at once unique, and by those who have resorted to it very effective, is that first suggested by LaCrone as possibly of value to the dentist, and advocated in certain cases by Low. It calls for the introduction into the nose anteriorly of a plegget of cotton saturated with a solution whose chief ingredients are cocaine and adrenalin. This combination affects the nerve supply of the anterior teeth, sometimes the first bicuspids, more rarely the second, and, let us remember, not through the tubules of dentine, but through the nerves to the apical foramina and possibly through those of the substance of the pulp itself. It seems not to have become popular, and the chief reason for this may be charged to the necessity on the part of the patient of having with him for the remaining twenty-four hours a pocket mirror to reassure himself from time to time that his nose and upper lip are still on.

HIGH PRESSURE METHODS.

But with some all of these methods have become obsolete, and resort is had to the method that involves the use of a powerful syringe for forcing cocaine or its equivalent into and through the dentinal tubules. Like syringes generally those that apply here have, as an essential part of their make-up, a piston or plunger operated by direct pressure, as in the U. S.; the screw, as in the Sapp; the lever, as in the Myers and the Wilcox.

Whether for the work of painless cavity preparation, or the removal of the pulp, the nozzle is implanted in dentine. To this end a pit must be made in the dentinal tissue, which is easily and quickly done in a cavity of decay, or on eroded or abraded surfaces from which the enamel has been removed. Otherwise the enamel must be perforated, and the beginning of this canal counter sunk, to provide for accidental lateral movement on the part of the rigid nozzle,—a valuable bit of practice brought it to the attention of the profession early in the history of the method. Without this provision flaking or even deep fracture of the enamel may occur, to say nothing of the disagreeable wrenching of the tooth because of the fixing of the appliance when the nozzle is inserted into a deep pit. The whole instrument becomes for the time a powerful and correspondingly dangerous lever.

With these preparations and precautions the work consists in forcing into and through the dentinal tubules as much as possible of the contents of the syringe.

THE DEPTH OF THE PIT.

It becomes a question of some interest as to the depth to which the pit should be made. In a cavity of decay it would seem that the deepest part, giving as it does the nearest approach to the pulp, would afford the best, because the shortest, route to that organ. But in superficial decay, covering much surface and calling for extensive cutting, the number of tubuli included by the nozzle would leave a large zone unaffected. Here two or more injections might be indulged in; but it would seem as if the same or a better result might be effected by limiting the depth of the pit to the granular layer,—that but partially or loosely calcified layer that marks the dividing line between dentine and its covering tissues. Laboratory experiments show a wide spread of the injecting solution in this layer, and a greater number of tubules affected,—a number proportionately numerous to the affected part of the layer in question. Theoretically, at least, the greater the number of tubules carrying the solution pulp-wards the greater the surface desensitized. This inferential advantage is offset somewhat by the fact that, while but few tubules are included in the nozzle of the syringe, the solution driven through them to the pulp is distributed over a considerable surface of the pulp itself, anæsthetizing more or less completely the whole district supplied by fibrils radiating from the affected pulp surface.

SUCCESS AND FAILURE.

The inventor of one of the instruments in question reported some time since over one hundred cases without a single failure. These included cavity preparation, pulp extirpation and decrowning. And yet some of the last named might not have given any pain if this or any other means of desensitizing had not been employed. To illustrate: Having two central incisors to crown we notched them labio-lingually with a suitable wheel, thinking, meanwhile, in case they proved sensitive to resort to the desensitizing method under consideration. As there was no suggestion of pain on the part of the patient,—a lady of about twenty,—we clipped them both with a forcep and, cautiously inserting a broach into the pulp cavity of one, making it hug the wall, passed it to the end of the root, gave it a turn, and then laid the broach with its pulp on the table. In an equally sly way we repeated the operation on the other pulp with a like result. While engaged for the moment in winding cotton on a pair of dressing broaches the patient, examining the display on the table, asked, "Are those the nerves?" "Yes." "And everybody told me it would hurt!" This is an exceptional case, and yet, had we injected the teeth, two grand successes would have been duly recorded.

Notwithstanding the great success that comes to some men, failure, partial or complete, now and then comes to others. Wishing to decrown a lateral incisor we drilled a pit in the enamel of the mesial surface about one-third the length of the crown from the incisive edge and, to make doubly sure, another in a shallow, cervical cavity on the same surface Decrowning and pulp-extirpation were accompanied by pain the quality of which was beyond compare, the quantity sufficient to entangle him for a time in words sometimes used in prayer. Why this unlooked for result?

This patient was forty-five to fifty years of age, his teeth of exceptional quality, all of them bearing the marks of vigorous use. His age, coupled with the fact that the tooth showed much wear across the incisive edge, suggested calcified dentine, or rather filled-in or obliterated tubules, of course impervious to the solution. Opposite the cavity of decay we found a deposit on the pulp-cavity wall; and when it is called to mind that the tubules in these deposits are offset rather than continuous with those of the normally-developed dentine, we have good and sufficient reasons for the failure. The better plan in these cases would be to open through a normal district, avoiding all places suggesting abnormal calcification and secondary deposits. This and similar cases tell us unmistakeably that attempts at injection of completely calcified dentine, or where there are secondary deposits, should not be made.

This kind of dentine, or dentine in this condition, is found in the aged and can be accounted for by age alone. It is also found in teeth long subject to abrasion. It is found in teeth affected by erosion, and especially in those in which the erosive action intermits, or has received a permanent check. It is found in cavities of slow growth; between the ebony-color line and the pulp-chamber. Failure should also follow in cases of secondary deposits on the wall of the pulp-cavity opposite the cavity of decay, as in the case of the elderly patient just mentioned. It should follow in case of pulp-stone that becomes adherent to the pulp-cavity wall.

EXPOSED PULPS AND LARGE FORAMINA.

Success in this operation is modified or unattained in two other classes of cases. The first, that of exposed pulps; the greater the exposure the more likely the failure. Here the solution passes to the pulp and, following the line of least resistance, flows to and through the opening of the pulp-cavity into the cavity of decay. It is not held in place long enough to penetrate the tissues,—not long enough in extensive exposures to appreciably affect the most superficial portions. Many of this class may be made successes provided the exposure is simple, easily reached and covered with cement before the injection is begun. In the second class of these cases we have similar conditions, but due to widely different causes. In the large apical foramina of undeveloped teeth of children, and the foramina of the adult when these are naturally but abnormally large, or made so from whatever cause, it is impossible to force the solution in other direction than the apex, where it must lay until disposed of by the comparatively slow-acting circulatory fluids.

WHITHER THE SOLUTION.

What becomes of the cocaine is already a matter of investigation in other quarters. In the case of exposed pulps it escapes largely into the cavity of decay. In cases of abnormally large apical foramina it trends toward the apical space, and beyond, to be gathered up as already stated. But without these outlets? Here it would seem, and laboratory experiments point that way, that it first gathers as a droplet, a sort of bleb, between the cavity wall and the pulp, eventually undergoing absorption by the vascular supply, and through this is eliminated from the pulp and finally from the system itself. That it does reach the very interior of the pulp is proved, first, by the absence of pain when a broach is forced into a recently injected and decrowned tooth; second, by the finding of cocaine in the substance of the pulp itselt.

This latter calls for a tooth recently injected by way of the dentine, preferably in the mouth. The tooth is then extracted, notched as for decrowning, and placed near enough to the pipes of a cold storage box, or in ice and salt freezing mixture, to freeze or, at least, thoroughly chill it. Later the tooth is broken, the pulp showing a clean fracture, the whole quickly washed in running water, and a speck of the heart of the pulp placed in a drop of water on a slide and transferred to a bell-jar containing a bit of wet blotting paper. Under these circumstances evaporation of the water on the slide occurs slowly, with the result that we have cocaine crystals in perfection. That they are such is further proved by the polariscope.

TORN AND DISPLACED.

Another question that suggests itself is,—What effect has this means of desensitizing the pulp on the soft structures of that organ, and especially the soft structures of the dentine? In laboratory experiments there is every appearance of the fibrils having been torn from their moorings, and therefore to that extent the pulp itself is lifted from its anchorages in the pulp-cavity wall. Whether harm comes of this to teeth treated for filling is still an open question; but it certainly is worth considering in young teeth where the apical foramina are necesarily large, the soft tissues in such openings offering but little resistance to the force exerted in driving the solution home. In other cases the detachment and breaking up of the soft tissues is probably of no consequence.

MECHANICS OR CHEMISTRY?

To what is this desensitized condition of the pulp and its ramifications due? To the solvent, or to the cocaine, or to both? The question comes because of the fact that similar—not the same—results have been obtained with water, and with water holding in solution substances that have no anæsthetic effect whatever. Distilled water and water containing sodium chloride have been used in mucus, serus and cutaneous surface work and no pain experienced, the mere gorging of the vessels and adjacent tissues seeming to answer the purpose for the time being, much as a string tied about the finger acts by cutting down the local circulation. The desensitizing here is evidently due to the mechanics involved, rather than to the chemistry of the injected fluid. But whatever the effects of the solvent, cocaine or its equivalent is an essential in this kind of work, and, except for mere experimental purposes for comparison, the matter would be hardly worth more than mention. It merely shows what *can* be done.

METHOD ANTICIPATED.

Finally, let all who have used cocaine on a bur in excavating for filling, or for encroachment on the pulp with reference to extirpation, or on a wheel as a lubricant in cutting down stumps for crowning, take credit to themselves that they have anticipated the instruments now used for desensitizing purposes. To cut the ends of the tubules with a bur or grind with a wheel wet with cocaine is to rub, squeeze, crowd, force into the tubules and their contents the desensitizing solution, and, as we lessen the distance between the instrument and the pulp cavity, into the pulp itself, so that when exposed the cornual end is partially and sometimes wholly desensitized. The conditions of success are that the surface shall be kept wet, that the bur or wheel shall be fine, and that its progress shall be comparatively slow, now and then to the turning of it backwards.

PORCELAIN WORK.

For cosmetic reasons we must use porcelain wherever we can and whenever it is or seems to be indicated, and I think the greatest class of indications for its use is that class encompassing purely cosmetic requirements. Hence it is my practice, and in my teachings I advocate, that wherever the indications seem favorable, and our desire is to approach the highest possible degree of artistic effort, porcelain should be employed; but that where the permanent preservation of the tooth or teeth necessarily demands a degree of strength which we cannot hope to get from porcelain, it should not be used. When I refer to cosmetic requirements I mean simply those cavities which are within the range of vision. In the ten anterior teeth porcelain can often be used to the very greatest advantage, but when we approach the posterior part of the mouth, and thus involve those teeth which have to accomplish the greatest amount of work, and upon which the greatest degree of stress is thrown, I do not believe that we can always safely depend upon porcelain, because of its friable nature.

Without taking too much of your time, I shall speak briefly of the methods of procedure which are most commonly employed in the judicious application of porcelain. Much discussion is in progress at the present time, and has been since the introduction of this work, as to which of the two classes of material employed—the "high" or "low" fusing—is the most useful. Let me say in this particular that I believe both of them serve a very great sphere of usefulness, and that I employ both. The largest proportion of my work, however, is done exclusively with the high-fusing bodies, mainly for the reason that in their employment we are enabled to get a greater degree of stability of color and form, both of which are very important, and the opportunities for which are somewhat diminished in the employment of low-fusing bodies. Another advantage in the employment of high-fusing bodies is the greater degree of translucency which they possess, and which quality or property enables us to more closely approximate the color of the natural teeth. So I believe in a large proportion of cases the most successful results may be obtained by the employment of high-fusing bodies, as applied particularly to inlay work, and more especially still as applied to crown and bridge work.

OBJECTION TO USE OF LOW-FUSING BODIES.

The greatest objection, in my opinion, to the use of low-fusing bodies lies in the fact that we usually experience much difficulty in removing the gold matrix and preserving its shape and form during the procedure incident to its removal and investment. Now, I know it is claimed that the use of low-fusing bodies offers an advantage, for the reason that we can more easily adapt a gold matrix than one of platinum. I have never become a believer in that hypothetical or theoretical advantage, for this reason : Whilst it is true that we can take gold foil of the proper thickness or thinness and readily adapt it to a given form, still, when we consider the fact that we must remove that, and further that it must be removed with extreme care in order not to destroy its given shape, you must realize and concede, I believe, that platinum possesses an advantage over gold for this particular reason. In many large cervical, labial or buccal cavities, however, I employ low-fusing bodies, because in these cases you can adapt the gold matrix and remove it, as their shape and location are favorable to the removal of the matrix with some degree of facility and with some assurance of certainty in the preservation of its shape.

I have recently learned of a very clever little method for assuring the preservation of the form of the gold matrix which I regard as valuable, and which was suggested to me by Dr. C. C. Allen, of Kansas City. After you have carefully burnished your matrix to the cavity, Dr. Allen suggests that we use gum camphor, broken into small pieces, and then packed down into the gold matrix, after which we can then lift the matrix off without danger of distorting the shape. The gum camphor can afterward be burned out over a flame of any kind, and all deposit soon burned off, and the shape will thus of course be perserved without a question of doubt.

ADAPTATION AND REMOVABILITY COMPARED.

In considering the comparative adaptability, however, of gold and platinum, let us not overlook the fact that, while we can form or burnish gold with a greater degree of facility, yet it is more difficult to remove ; while, when we employ platinum, it can be adapted perhaps with somewhat less facility, but when it has been given a certain form it possesses that peculiar characteristic which enables it to retain that form.

I believe that this is one of the most important advantages in the employment of high-fusing bodies, and also that platinum is the ideal metal for this particular purpose. In its use there is is not much likelihood of having a misshapen or distorted filling, while such is very likely to occur in the employment of gold. While you can use a gold matrix and low-fusing bodies in those simple cavities in the labial and buccal surfaces of teeth with safety and to perhaps a greater advantage, still, where your cavity involves two surfaces of the tooth, platinum, in my opinion, is especially indicated for the matrix, and high-fusing body should be used.

Now, just a word or two in regard to the adaptation of a platinum matrix. I dare say many of you have methods quite as good as mine, but Dr. Van Orden has suggested that I mention as many practical points as possible, with a view to giving you ideas which might possibly be new or cause you to think. Some discussion is going on at the present time as to whether the matrix should be swaged or burnished, and as to the relative advantages and disadvantages of the two methods. We really swage the matrix when we burnish it, but we should never bring the burnishing instrument in contact with the surface of the metal itself. When we pack moistened cotton or spunk into the cavity, with the matrix between it and the walls, we practically swage it. I believe, however, that we can secure the best results in a combination of the two methods. In extensive cavities it is always my practice to first secure an impression either in gutta percha or cement, whichever you prefer or whichever you can use to the best advantage, and make from that a die or reproduction of the cavity. Then, with the die properly invested, the matrix should be swaged with flexible rubber in the cylinder and plunger apparatus. This conforms it, approximately, to the outline and shape of the cavity, but it is not my belief that we should ever endeavor to fit the matrix and finish the filling without carrying it to the cavity. After it has received its preliminary swaging, however, the final adaptation should be made directly in the cavity itself. So as I say, I invariably make a practice of taking an impression of all cavities which involve two or more surfaces, and secure the preliminary adaptation of the matrix in this manner, and then place it directly in the cavity and finish. I do not regard this procedure as a waste of time, and, while it will take you perhaps half an hour to get the impression and make your dies and swage, the time is well expended, because you are certain of getting a more accurate adaptation.

In simple approximal cavities in anterior teeth, however, do not resort to this method, for the reason that it is not necessary. You should remember, of course, as all of you doubtless know, that you must have plenty of space to begin with, and if this is observed you can adapt the matrix to simple approximal cavities in the anterior teeth without going to this expenditure of time by burnishing into the cavity first and then using tape, as you would a finishing strip—on the margins.—DR. H. J. GOSLEE, *Gazette*.

YOUR BREATH.

You are a pretty decent-looking fellow. Your clothes look reasonably clean and tidy, and your linen fresh ; and your hands look soft and well-cared for, and your nails are well manicured—not professionally manicured, perhaps, but a very decent job, if you did do it yourself.

The barber seems to have had you in hand, too ; even to a facial massage with plenty of hot towels.

I don't wish to offend you in the least—not for anything ; and say, now, you must not be offended. Somebody has *got* to tell you, if you haven't a wife, and sometimes if you have.

But please don't look me in the eye. Kindly turn your face away while I propound a question.

Do you make Limburger cheese a part of your daily diet—no? Well, it might be an improvement if you did. Aha! are are you on?

I've been trying to approach this matter as gently and delicately as I could, and I'm glad you've caught on. It is *rank*. You may have your opinion about my eating Limburger, but this is my inning, not yours. I have the floor and I'm talking to you.

I just wanted to tell you what you probably don't know about yourself. Your breath——

"Oh, the smell of the jessamine-flower" is much more agreeable ; and even a burnt woolen rag—well, you can guess what this is, anyway.

To be plain, the afflatus of that embrasure of your physiognomy is not of that divine inspirational character that impels one to linger in the aroma (?) and think lofty thoughts and sentiments, any more than it would to loll on a hot summer day on the banks of "Bubbly Creek," in which the offal of the Chicago stock yards discharges and lies festering for many a day. No, I don't think.

On the contrary, cuss words float through one's brain, and, not infrequently, audibly through the air; and the first impulse (and the last) is to flee—flee as a bird.

But what about those patients of yours? They, no doubt, think cuss words all right, and the sin is on your head; but they can't flee—not for the moment; but they may at the first opportunity, and never return.

A Friend Indeed.

Now, sir, this is where I'm your friend. I'm telling you in this quiet, *sub-rosa* way so that you may try and correct the evil and avert any such catastrophe. That is what it is, and a dum poor advertisement when your patient's tongue never forgets to give you a left-hander after this fashion: "What a pity it is that such a nice, pleasant gentleman and fine operator has such a terrible breath! Wuh!"

You are not the man? What? Do you deny the *rank* impeachment? Well, sure, there is no suggestion of peach or mint about it. It is *vile.*

Oh, possibly not to-day, because your health is better than yesterday—your stomach, anyway—and because you have taken extra precautions; but to-morrow, or next day, possibly in an hour after taking some kinds of food. You can never tell, yourself, whether your breath is tainted or not, so don't get sore at me for giving you the tip and being plain about it. Oh, yes, of course, if you have a very dark brown taste in your mouth you may know that your breath is not like an infant's.

You say you take every precaution as regards cleanliness and hygiene? You brush your teeth and use antiseptic washes three or four times a day? Good! Keep it up! But do you make any effort to regulate your diet—except possibly to deny yourself onions and garlic? Is your digestion good? Knowing it is not, do you take any precautions against the putrifying odors that are extremely evident?

The Water-Wagon.

Do you drink? Excuse me, I did not ask you to have anything. Not me. If any one asks you, begin the new year right and politely but firmly decline.

Let your motto be,
No "suds" for me.

Isn't it strange what drawbacks there are to a number of good things in this world—and you can't disguise them, not even with cloves or cardamoms. No, the only thing to do is to let it alone. Cling to the sprinkler, though the spray takes all the crease out of your trousers.

But you smoke? Oh, yes, I've seen you. I've seen you (some of you) with one of those *nasty* cigarettes in your mouth, and here in a civilized community. What's that? You've seen me with a rope? Well, not from any craving inclination to smoke rope. Mine is a two-for-fifty taste, with two-for-five resources. But *you* are the target of this topic, not I. Don't go out and smoke anything and go back and breathe it into the sensitive face of the patient you've got down in the chair and who can't get away. Remember, that at your sweetest you do not smell always like the delicate odor of attar of roses.

Oh, of course, you rinse your mouth and even scrub out your mustache, but tobacco takes several hours to fade away, and you know it. Such efforts as you may use to modify or suppress the disagreeableness is the least you can do, but why don't you use some horse sense? Horses do not pollute their mouths with tobacco.

THE MUSE.

When the poet was stirred by the real divine afflatus to pen the *beautiful* lines below, he no doubt had been stirred many a time before by the rank and rancid afflatus of a tobacco mouth. Wuh! Here are the beautiful lines. Commit them to memory and follow the resolution of little Robert:

"I'll never use tobacco, no;
For 'tis a filthy weed;
I'll never put it in my mouth,"
Said little Robert Reed.

It is a long time since I saw the poem, and I may not have quoted it verbatim. In fact, I've been questioning in my own mind if the boy's name was not Jimmie instead of Robert, and Reed may be spelled wrong. Anyway, the sentiment of the thing is there. Inhale that instead of tobacco—and especially cigarettes.

We have to inflict woes enough on our patients without overwhelming them with a rank breath. Sometimes they come back at us with a worse one, it is true; but we have remedies at hand for temporary relief, while they have none—except to get away from us as soon as they can.

The trouble is, as I have already said, that not one person in a thousand suspects that he has a bad breath until told by some good friend.

Now, what is there to be done for ourselves—I mean for you. I forgot I was talking just to *you*.

KEEP IN CONDITION.

Well, use every precaution to keep your stomach in a first-class normal condition, and avoid any ill-smelling diet—that is, that is ill-smelling after it is down. Yes, you have got to be mighty careful of the things you may eat and drink, if you want a nice, clean breath, besides using all hygienic measures (and use them often) for odors that emanate from fermenting and decaying food particles in the mouth. Make it a point to use a good deodorant and antiseptic mouth-wash before beginning service for each patient; and if the service is at all protracted, repeat the dose once, twice or thrice. Treat yourself as a suspect at all times and use precautions, and keep your mouth closed while operating. The older you grow the more the need. You know it well enough.

Dioxogen is my favorite mouth-wash, or something of that order. Nothing burrows into the deep and obscure recesses and brings out the offensive substances better than some of the $H_2 O_2$ preparations of about 3 per cent. strength. When I get hold of a patient with an offensive breath I very soon introduce a dose of peroxide into the mouth on some pretext or other, or without any, and then follow with peppermint water or sanitol. —DR. R. B. TULLER, *American Journal*.

HOW DO YOU FILL PULP CANALS?

Dr. Otto Ingliss * * * gives the following qualities which a root-canal filling material should possess: It should be non-irritant and hermetically seal the canal, and should be unalterable in the conditions which surround it. It should have a continuous antiseptic reaction and be easily removed in case of necessity. These qualities are found in gutta-percha into which some durable antiseptic has been incorporated. This material can be adapted to a canal which has been reamed and enlarged so as to permit of easy introduction of the gutta-percha which may be manipulated by softening it with heat or liquifying it with chloroform to such a consistence that it can be forced into a tortuous canal and made to permeate every part of any irregular surfaces. When liquified it is best manipulated in connection with a hard gutta-percha cone which reduces to a minimum the shrinkage from the solvent being absorbed or evaporated. To secure the best results the canal should be thoroughly prepared surgically and disinfected. Before introducing the filling the canal should be washed out with alcohol and dehydrated with the hot-air syringe or root-dryer, and then saturated with eucalyptus oil. The chlora-percha is then introduced by means of a suitable probe on which a few shreds of cotton are wound to serve as a carrier and the chlora-percha can then be carried to the end of the root and the walls of the canal coated so that the gutta-percha cone will glide readily to its position. A hard gutta-percha cone is attached to a root-canal plugger which has been slightly warmed so that it will adhere to the cone, the heat softens the cone enough to allow it to bend and follow the tortuous canal. The gutta-percha cone should not fill more than one-third of the apical end of the root, leaving the balance to be filled with oxy-chloride of zinc cement, and the crown cavity with such more durable filling as may be desired. This method securely stops the apical foramen and the zinc cement acts as an antiseptic filling, especially when some strong or durable antiseptic has been incorporated with the cement when mixed.

Dr. Elgin MaWhinney, in the newest work on oral pathology and therapeutics, just off the press, treats this subject in much the same manner and we give here a brief synopsis of his chapter on the preparation and filling of root-canals. After describing the anatomy of the different canals and the methods of removing the pulps, he gives particular instruction as to methods of performing the surgical part of the process under strictly aseptic conditions, and points out the great importance of exceeding care that this shall be absolutely accomplished. He advocates the use of sulphuric acid to cleanse and enlarge the canal and loosen the nodular deposits, also the pulp digestors, such as carica papaya, dissolved in slightly-acidulated water, which he would seal in the canal for from ten to twenty days. For the pulp mummifiers he says he "*has no respect.*" He says of "immediate root-filling," if the work of removing the vital pulp has been thoroughly done, with all cautions against infection, it would seem advisable, after bathing the canal with some mild antiseptic, such as a mixture of eucalyptus, cloves and trikresol, and drying it out with alcohol. It is, however, a more definite practice to allow the antiseptic solution to remain in the canal for a few days before filling.

GUTTA-PERCHA THE BEST

No subject has received more attention during the last fifteen years than the process of filling root-canals, and no ideal filling has yet been found. The ideal root-canal filling should not be porous, irritating or shrink after it is placed, and should be readily manipulated and capable of being placed accurately in the most constricted or tortuous canals. We have no such material at the present time. The one which most nearly qualifies at the present time is gutta-percha, and this is probably more used than any other material. To use gutta-percha for large canals, select first a small cone that will fit and fill the apical foramen as nearly as this can be determined by testing with the probe. Moisten the canal with eucalyptus after it has been sterilized and made dry, then place the sterilized gutta-percha cone on the end of a warm canal plugger and force this piece to place so that it fills completely the apical foramina. Then fill the rest of the canal with suitable pieces of gutta-percha, using the hot-air syringe to soften the gutta-percha in the canal so that it may be the more solidly packed. In small canals select a small cone that is stiff enough to be forced to the end of the root. The canal is moistened as before with eucalyptus and liquified gutta-percha is then pumped into the canal with a suitable probe or brooch wound with a shred of cotton. Care should be taken to insure the forcing of the chloro-percha to the end of the root in these canals by continued pumping. Then insert the small stiff gutta-percha cone and gently but firmly force it to the apical foramina and leave it there as a seal. The excess of chloro-percha should be allowed to flow back in the canal rather than be forced through the foramina. When the canals are very small, finely-pointed gold or copper cones can be used in place of the gutta-percha, as they will carry to the end of the canal more definitely. In the larger canals, where gutta-percha cones are used, they should be placed as nearly as practicable and then the chloro-percha evaporated until all shrinkage has taken place, when the gutta-percha can be warmed and repacked. The object to be attained in all cases is to pack the canal to the end with the gutta-percha and any method that individual skill may devise for accomplishing this end certainly should be used. There will always be a variation in exact manipulation corresponding with the variety in one's habit of using instruments. There may also be some variation in materials to suit peculiar idiosyncracies. A delicate tactile sense, natural or acquired, will be a large factor in the success of this operation from the manipulative aspect. The materials and method described will serve to illustrate the general practice of the more conservative operators, and, when carefully made, will produce satisfactory results.—EDITOR, *Register*.

MODELS.

I consider that an intelligent comprehension of each case requires as an absolute necessity in the hands of the orthodontist a pair, not one, mind you, but a pair of the most accurately and skillfully made models it is in his power to prepare, articulated carefully and trimmed artistically. For what is such a model if it be not "a little block in science," and what but a book in our cabinet telling the story of Nature's efforts and perhaps their failure before reaching full maturity? Of what use is a model if it be not accurate and tells not the truth; if its anatomy is not perfect; and what a reflection on one's sense of proportion and beauty if carelessly or slovenly trimmed! A model should be made with the same degree of skill which is exercised in making the finest fillings, bridges or dentures. The crowns of the teeth are not enough. Our work is in the alveolus largely, and hence we must have an accurate impression of it. The discovery, which was one of the greatest in orthodontia, of the fact that Nature will build in a sufficient amount of alveolar tissue to meet the requirements of the teeth in their new positions and restore the lack of contour to the face, would never have been known without accurately-made models from plaster impressions, from which we can easily determine the growth of bone. Measurements can be taken from such models from which we can determine how much the very apices of the roots have been shifted by Nature as a result of establishing normal occlusion of the crowns by means of regulating appliances.—*Items.*

THE USE OF NON-COHESIVE GOLD.

The properties of gold have been well understood for many years; but few have failed to take advantage of these properties. The placement of non-cohesive gold by the wedge principle is as old as dentistry, and no man who has practiced for many years has failed to observe how fillings of this class have preserved teeth. It is difficult to build out with this material to any considerable extent, and consequently many who desire to restore lost contour have resorted to the use of cohesive gold. I consider that a combination of the two forms of gold facilitates our work and saves fatigue to the patient and strain to the operator. I do not question that the results obtained by those who employ cohesive foil are as satisfactory as I can obtain with the combination material, but I do contend that the effort of the former is much more laborious, and I am insistent that those who work entirely with cylinders cannot obtain as satisfactory results with cohesive cylinders at the gingival seat as can be obtained with non-cohesive cylinders at that situation.

SOME DIFFERENCES.

All pure gold is cohesive unless gases have accumulated on the surface, which render it greasy. If gases are allowed to so accumulate the gold partially loses its cohesive property, and, unless annealed, works practically as does non-cohesive foil, but on annealing those gases are driven off, and it becomes fully cohesive.

That is not true of non-cohesive gold; there is only one manufacturer to-day who prepares absolutely non-cohesive gold, and by that I mean gold that can be annealed to cherry redness, and on being so annealed does not regain cohesive properties.

It is assumed that the method of preparing this foil is that the beaten foil is placed in a furnace between sheets of paper and allowed to remain in the muffle until the paper is incinerated. I say it is supposed that is the process, because it is more or less a secret process; others claim that there is a small percentage of lead with the gold, but in our working with non-cohesive foil we obtain the full advantage of the softness of the pure foil, and non-cohesive foil has been misnamed soft foil, because when worked in cavities in the deeper portions of these cavities, it does not stick sheet by sheet and become stiff, and consequently it is called soft foil; but practically at the inception it is no softer than cohesive foil, and in working in deeper portions of the cavity it does not become so stiff.

Tin and gold in combination work precisely as does non-cohesive foil.

Perhaps I can bring to your minds very closely the difference in the working qualities of the two classes of cylinders, if we consider for a moment the difference between stiff electric wire and flexible electric wire. You all know that flexible electric wire is made up of a series of strands of wire interwoven into a small cable. Take, for instance, such a cable of the calibre of my finger, and then take a solid wire of the same calibre, and the difference between the flexibility of the two wires is very marked. That illustrates the difference between cohesive cylinders and non-cohesive cylinders. When a cohesive cylinder is pressed down into the deeper portion of a cavity, each layer of foil making up the cylinder will stick or cohere together, and consequently the series of the sheets which go to make up that cylinder under pressure finally become ten times as thick as the orignal sheet and as stiff as though it had originally been foil of number thirty if the foil making up the cylinder is composed of number three foil; whereas, if that cylinder is made up of non-cohesive foil it can be pressed down into the corner of the cavity and one sheet of the foil does not stick to the other sheet of the foil; and if it is moved slightly in bringing it down into position, it does not become stiff under the pressure.

ADVANTAGES AT THE GINGIVAL SEAT.

My reasoning that the use of non-cohesive cylinders at the gingival seat is more advantageous than the placement of cohesive cylinders at that point is worked out from this basis: That if the model I have before you is correct, then the retention points made, which are very slight at the angle created by the buccal and gingival walls and by the lingual and gingival walls, cannot be started with cohesive cylinders which may not rock before the filling is completed; but if we wedge in with non-cohesive cylinders we can still prepare cavities on this plan without encroaching on the lateral walls of the teeth and weakening them, or without encroaching on the pulpal wall with damage to the pulp from thermal shock, but by combining with the non-cohesive cylinders, cohesive cylinders, by interdigitation we obtain as firm an anchorage as we would if we had started fresh with the cohesive cylinders in deeper cavities.

COMBINATION.

A series of cylinders of suitable length are selected, and they are placed on the gingival seat of the cavity with only the pressure that can be brought to bear by foil pliers. Prior to their condensation the series of cohesive cylinders are pressed into place with the same pliers, and then condensation is completed with hand plugger points. After these have been pressed home with the hand plugger points the condensation is completed with a mallet. Then the margins are burnished with a flat, smooth burnisher, and all the margins are protected by burnishing the excess over the margin. This portion of the filling is now finished with strips. At that stage of the filling the matrix is put in position and the filling completed with cohesive gold cylinders. The advantage of burnishing and finishing off at the gingival border prior to the completion of the filling is that this is the most difficult portion to finish after the filling is completed. The knuckle or contour of many a filling has been destroyed in the efforts to finish perfectly the gingival margin, when we have waited until the final completion of the filling to finish at that point.—DR. JOHN I. HART, *Items*.

APPENDICITIS OF DENTAL ORIGEN—COD-LIVER OIL A TOOTH-PROMOTER.

The following from a newspaper letter from London is intensely (?) interesting:

"Appendicitis is often due to bad teeth," said Dr. E. S. Thompson, lecturing at Gresham College yesterday.

"The same organisms," he said, "were present both in defective teeth and in the diseased appendix, which proved that dental decay was capable of causing appendicitis.

"I see no evidence to show that our teeth are deteriorating to an alarming extent with the growth of civilization," he declared, and he pointed out that an even larger proportion of diseased teeth had been found among the Egyptian and Roman remains than existed at present.

"Tobacco has an injurious effect on the digestion," he went on, "but I do not think that nicotine has any more effect on the teeth than alcohol. But tobacco certainly blackens the teeth, and so causes many people who are careful of their personal appearance to brush their teeth more than they would otherwise do."

He had found cod-liver oil amazingly productive in promoting the growth of teeth in children, and he recommended toothbrush drill as part of the curriculum of schools. Dr. Thompson also urged the practice of washing the teeth after meals, and rubbing them twice a day, particularly the last thing at night.

MAKING APPOINTMENTS.

At the outset I would strongly recommend that every dentist who can should educate his patients to understand that he works by appointment, even though he knows he cannot carry out this plan to anything like an exclusive length. The reasons are that his time is filled more evenly, he obviates the risk of being hurried over his work, he shows that he considers his time of great value, and his patients will gradually absorb the same idea; and if at any time he wishes to absent himself from his work for business or pleasure, no patient who has not made an appointment has any legitimate cause for complaint at not finding him at home.

And here I would say that no self-respecting practitioner will be so foolish as to hold himself at the beck and call of all and sundry at all times and seasons. As far as possible, let his business hours be clearly defined and adhered to. Let only the most urgent case of distress soften his hard heart. Let Sunday be kept a day of rest and health, and let an afternoon in the week be also set aside for recreation. "The world is not much use to a man if his wife is a widow." Ours is a trying profession, and the dentist who wishes to make old bones must fill his lungs with fresh air and brace his nerves and muscles, not fitfully, nor sufficient to produce over-fatigue, but regularly and with an eye to his age and his habit of body.

Many Sorts.

Let me now refer to the different sorts of appointments which are made in the course of the day. Before beginning work we go over our letters and place those from patients requesting appointments by themselves. We take our appointment-book and, first of all, fill in the names of those who ask for a specific time, as nearly as we can. Those to whom we cannot give the exact time for which they ask, we give the nearest available. And here a useful point may be mentioned. If such a patient comes by train, it is just as well to look at a railway guide to see how the trains arrive, as to give an appointment earlier than the train arrives is waste of time. After having filled in these names, we can turn to those who give us a certain amount of latitude, "one morning next week," and so on. These can be easily arranged, and in each case the day and time we have noted in our book is written on the corner of the patient's letter, but, except in cases of urgency, the letters had better not be written till it is time to catch the evening post. The reason of this is that one does not know what may happen during the day. A patient who has written may write by next post or may telegraph, altering or cancelling the appointment ; or a patient we are seeing may particularly wish a time we can easily change with someone who has given us a margin, or a patient during the day may cancel or change an appointment, leaving it free for a postal correspondent who particularly wants it.

Appointments by telegram—especially when a reply is wished by telegram and not paid for—are often annoying. One cannot tell the urgency of the case, and much depends on the character of the patient if known ; but it is pretty safe to say that an unknown name means the sender is in sore straits, and an effort should be made to see him. Otherwise it is a wise plan to refuse to be "hustled" either by telegraph, telephone or caller, who demands immediate attention.

As regards the latter person, if he is in extreme pain or distress, common humanity dictates that he should be relieved, if possible. But to make sure that we are not needlessly disturbed, our servant should be instructed to ask each caller who arrives, "Have you an appointment with Mr. X——, sir, or madam ?" If the patient says he has not, the servant should inform him that Mr. X—— is very busy, and inquire whether the patient is in pain. The dentist can then form his own opinion and act accordingly, but the calling of patients "on the chance" should be discouraged, as, sooner or later, it becomes not only a nuisance, but is unfair to patients who have taken the trouble to make an appointment.

WORKS BOTH WAYS.

A story is told of a brother practitioner who was asked to see a lady "just for a moment," while in the midst of an operation. He properly refused, and the lady with much indignation went away, but subsequently wrote for an appointment. She reproached my friend when she came, and he said he had sold his time to someone else, and so did not feel justified in seeing her. He proceeded to put on the rubber dam, clamps and accessories, and then said: "Excuse me for a few minutes, please, as I want to see someone else." The patient said, as well as she could: "What! leave me like this?" He replied: "No, madam; but that is what you wanted me to do the other day to someone else when you called."

Where possible, it is advisable to make appointments for gold fillings, dead teeth and other difficult operative work in the morning, when one is fresh, and mechanical work in the afternoons.

As regards broken appointments, it may be pointed out that by a recent judicial decision it is quite lawful to charge for wasted time. Whether it is wise is another matter; but it is advisable to have a notice in the waiting-room pointing out the loss and inconvenience occasioned by insufficient notice of broken appointments. Some dentists have a notice that appointments broken without twenty-four hours' notice being given will be charged for, but I fancy that it is given only to the very elect of the profession to live up to that standard. That it is perfectly fair, however, is undoubted.—*British Dental Journal.*

THE RATIONALE OF THE COLD.

The rationale of the causation of the ordinary "cold" is pretty well understood at the present day, and it is generally conceded that when circulatory disturbances or vital depression are produced, as the result of localized or general chilling of the body surface, newly entered or already present pathogenic bacteria are enabled to attack the body with very good chances of success. At such times it is said that the powers of resistance are below par, and, consequently, the bacteria gain an easy victory. This point was illustrated in telling fashion by Durck, who found that rabbits infected with pneumococci developed pneumonia if they were subjected to severe cold, whereas unchilled control animals survived. The mechanism of this weakening of the vital forces has not been satisfactorily explained, however, and considerable interest, therefore, attaches to experimental work on the subject recently done by Franz Nagelschmidt. This observer contributes to the recent Senator Festschrift a description of his studies on the hemolytic and bactericidal power of the blood after the animal has been exposed to cold. Rabbits and goats were used, and the activity of the anti-bodies of the serum was tested before and after immersion of the whole animal, or portions of its body, in ice water for varying lengths of time. The results obtained showed some curious inconsistencies that still demand explanation, but in general it may be said that by chilling the surface it is possible to reduce the number of the anti-bodies in the blood to a very marked degree. This means that the body is deprived of a goodly proportion of its defensive weapons, and, therefore, under such conditions it easily falls a prey to infections of all sorts. The effect of cold in bringing on attacks of paroxysmal hemoglobinuria is well known, and it may be that this obscure condition will be illuminated by further developments along the same line of investigation. A point of practical importance is the fact that it was found that repeated exposure to slight degrees of cold brought about an increase of anti-bodies, and this observation, therefore, affords a theoretical justification of the practically approved methods of "hardening" the body by hydrotherapeutic and other methods of training. Such procedures should not only serve to protect against colds and allied conditions, but also should render the body better able to cope with bacterial and other noxa of all kinds.—*Medical Record.*

INLAYS.

After all decay is removed and the cavity is made sufficiently deep for retaining purposes, the margins should be looked to—and this is one of the most important parts of the operation. Great emphasis is usually placed upon the necessity of having these margins parallel.

This seems to me to be very desirable, if it can be done without too great sacrifice of tooth structure; but not absolutely essential to a good operation. The margins should be as thick as possible under existing condition, and should not be beveled externally. Beveled margins in a porcelain filling will give frail overhanging edges, a ragged joint and a well-defined line of cement showing through at this point. If, after the cavity is prepared, there exists undercuts, these places may be quickly filled in with temporary stopping which can easily be removed before setting the filling.

GETTING THE IMPRESSION.

The cavity having been prepared, the next step is getting an impression. The platinum is cut the proper size and shape, allowing considerable margin, thoroughly annealed and placed over cavity, with gentle but firm pressure, using a pellet of cotton or spunk, carrying it well to the bottom of the cavity. This should be done before burnishing over the margins, to prevent tearing in the center, although a reasonable hole will make no difference. If, in adapting the platinum to the interior of the cavity, an ordinary round-head burnisher is used and the platinum is not carried well up against the walls, internally, the result is a rounded back to the filling which will prevent its being well retained.

THE MATRIX.

The matrix should be adapted to the interior of the cavity at every point before the first baking is done, as it cannot be done afterward. After the matrix is thoroughly adapted it should be gently teased from the cavity, and the first baking is made.

The body should only be carried to the biscuiting point in this baking, to prevent burning out the color in the subsequent bakings. All surplus platinum is now trimmed away and the matrix is replaced in the cavity for the final burnishing. With one hand hold an instrument firmly in the center of the filling and adapt the matrix thoroughly to every part of the margin with the other hand. Remove the filing gently and make the final bakings. In doing this part of the work, it is not at all necessary to stare into the mouth of a glaring furnace, which is very injurious to the eyes, as a very little experience will teach one just how long to bake at a certain temperature, just as in vulcanizing—of course being careful to the second, as the color is very easily burned out.

After baking, the matrix should be stripped from the filling, taking great care not to injure the frail margins. This can best be done by stripping from the margins to the center. The filling is roughened on the cement surface by a thin disc-wheel, which is quicker and much more effective than hydro-fluoric acid, which is sometimes used.

Cement is now mixed to the proper consistency and the filling is carried to its final resting place, being held firmly in position until the cement is hard. If it is an approximal filling, a ligature may be tied tightly around it at this time—a good point, for which I am indebted to my friend, Doctor Hardy. I consider the process of setting the filling one of the most important parts of the operation. Place the rubber on, wipe out the cavity with alcohol, which disinfects it and at the same time dries the surface thoroughly. Mix the cement as thick as possible to allow the filling to be carried perfectly into position. DR. B. BRIDGEFORTH, *Summary*.

SALIVA AS A MICROBE KILLER.

It was already known that secretions of the mucous membranes, especially saliva, possesses antiseptic properties, which explains the reason why the germs which enter daily and hourly through the mouth do not reach a harmful development; but Edinger has now found the active material in potassium rhodanate, which is present in saliva. Potassium rhodanate is a compound of sulphur, cyanogen and potassium, and is, in large quantities, narcotically poisonous to warm-blooded animals; it is, like other rhodanates, fatal to bacilli. A quinolin rhodanate, lately produced, is said, in a solution of three parts to the thousand, to kill the cholera bacillus in a minute, and, in a solution of three times this strength, to kill the diphtheria bacillus in the same time. It was found by further researches that this rhodanate has the effect of carbolic acid and of corrosive sublimate, and at the same time is harmless to man. Saliva, especially that of fasting persons, plays a great part in popular medicine: and beasts, by licking, keep their wounds clean, and bring them to a quick healing without suppuration.—*Popular Science.*

WHY ROUND-FACED PLUGGERS SHOULD BE EMPLOYED.

The *spreading* properties of gold are so well known that it seems scarcely worth while to dwell upon them, yet there are many dentists who fail to take advantage of the well-known characteristic in operative procedures. A mechanic understands the value of a convex face on one of his hammer-heads when riveting a bolt or spreading a metal plate. The dentist in his laboratory knows how to take advantage of the spreading property of gold in swaging a plate around a remaining tooth, or over the heel of the process, or, if he has made a crown band too small, it is readily stretched by laying over the convex surface of a projection from the anvil and tapping with a flat-faced hammer, thereby spreading portions of the mass. The gold beater depends upon the convexity of his hammer as he beats the gold leaf to spread it in the vellum cutch or molds from an inch square to the usual four-inch square size. Indeed, the malleability of gold seems to be well understood by our profession in every department of constructive work, except operative procedures at the chair. If search be made through the pluggers of the supply houses, but very few will be found whose impacting points are other than flat, whatever the form of the plugger end may be, and fewer still will be found, in proportion to the number kept, in the individual dental equipment; yet a mass of gold melted and run into a cylindrical form and placed in a circular cavity with parallel walls, not too deep, and just large enough to take the cylinder—allowing it to slip in and out readily—can be so "riveted" or spread in the cavity with a convex-faced plugger that it will be made to fit the cavity and hermetically seal the orifice. How much better this can be done by spreading the gold piece by piece as inserted, spreading the mass literally, causing it to hug tightly the cavity wall from the base or seat to the surface. I feel sure that practitioners generally have not understood the case with which moisture-tight fillings can be made by taking advantage of this characteristic of gold, and that a flat-faced plugger will not spread the mass.—DR. D. M. CATTELL, *Review.*

OUR UNHAPPY PRECEDENTS.

Some philosopher has observed that "Man is largely a creature of habit," and a listening cynic has replied, "Yes, and mostly bad habits," all of which may be true and in a measure may acount for some of the peculiar practices of the dental profession, for even our noble calling, at once among the oldest and the youngest of the arts, is held in bondage by the precedents of the pitiless past.

When we hold up for comparison the great triumvirate of healing arts, medicine, surgery and dentistry, it takes no very exhaustive analysis to determine that in proportion to the amount of time, labor and learning expended for a given fee, in money, or reputation, or respect, our profession has decidedly the worst of the comparison.

Acting wholly in accordance with precedent the same individual who will unhesitatingly pay a medical specialist from two to five dollars for five minutes' treatment of a diseased eye, ear or throat, will feel that he is robbed if his dentist charges him ten dollars for treating an alveolar abscess, perhaps a score of times, because in the past dentists have not charged for treatments when they have eventually filled or extracted the teeth afflicted with disease.

So, also, will our citizens pay for medical examination and advice because the medical profession has made a practice of charging for these things, but will look pained and offended if a dentist demands a fee for similar services, because it is not customary to charge for them. A surgeon may spend twenty minutes amputating a finger or toe, and his fee of twenty-five, or fifty, or one hundred dollars, with a special charge for the anæsthetic, is accepted as a matter of course, *for this is surgery.*

A dentist may spend half an hour removing an impacted lower third molar, an operation involving just as much skill and perhaps greater risk to the patient, with proportionately great responsibility on the part of the dentist, and yet only in rare instances of great professional courage will even as much as five dollars be asked for the service, *for this is dentistry*, and in the past many dentists have performed such services apparently mainly for the amusement they derived from them.

A surgeon amputates a limb for from two hundred to one thousand dollars, and a little later a dealer in artificial limbs supplies a substitute for a few hundred more. This is surgery, governed by established precedent.

A dentist extracts the carious remainders of a set of teeth, and eventually makes an artificial denture to replace them, for from five to twenty dollars, with no charge for extracting.

This is dentistry, and in accordance with inane precedent and senseless custom.

The business men, those from whom we buy our coal and provisions, and the heartless but wise corporations which furnish our water and gas, send out and collect their bills each month and so grow rich, or pay dividends on watered stock.

This is in accordance with established custom and looked upon as a matter of course it excites no comment.

The average dentist, however, sends his bills out once or twice a year, and very rarely does so until the work is all done for the individual to whom the bill is sent, though the services may have been performed during a period of six months or even more.

Almost any exception to this rule excites indignant protest for it is contrary to precedent, and our patients do not understand the meaning of monthly payments or "cash at the end of each operation."—DR. FRANK L. PLATT, *Gazette.*

THE PRACTICAL PLACE.

REPAIRING PUNCTURES IN RUBBER DAM AFTER ADJUSTMENT.

Take a piece of sugeons' adhesive plaster of the proper size, slightly warm it and cover the puncture. It will effectually seal the opening.—*Review.*

A HANDY APPLIANCE FOR ELECTRIC FURNACE WORK.

Get a clay pipe, just the common penny kind, and cut the stem in pieces about half an inch long. In making a crown set the post in the hole in the piece of stem. The pieces will stand the highest heat required in every case.—DR. G. B. SPEER, *Brief.*

METHOD OF MAKING SURFACE OF WAX SMOOTH.

A smooth surface on a "waxed up case" can be obtained without spoiling festoons or gum carvings by adopting the following method: Smear the surface of the wax with a pellet of cotton saturated in chloroform. Burn off the chloroform with an alcohol lamp or a small Bunsen flame. This will leave a smooth, glossy surface on the wax and will destroy previously carved gums.—*Review.*

APROPOS TO THE USES of cement and porcelain, Dr. W. V. B. Ames, of Chicago, suggested the mixing of porcelain powder with an equal quantity of cement powder for the filling of anterior teeth, being preferable to cement alone, as it resembles an inlay and will be much more durable than cement alone. On account of the porcelain particles being close together a much harder surface is obtained. The mix should be used as thick as possible.—DR. W. J. TAYLOR, *Gazette.*

ROOT FILLING MATERIAL.

Make a saturated solution of thymol in eucalyptus, and dissolve in one ounce of it one-half ounce ot base-plate gutta-percha. The gutta-percha should first be dissolved in chloroform and then mixed with thymol and eucalyptus. Let the chloroform evaporate and the paste is ready for use. It can be worked into the canals with a warm brooch, and forced into all the canal with a hard gutta-percha cone.—B. L. COCHRAN, *Review.*

TO PRECIPITATE GOLD FROM A SOLUTION CONTAINING OTHER METALS.

Make the solution thoroughly acid by either nitric or hydrochloric acid. Then add from ten to one hundred cubic centimeters commercial formalin, according to quantity; the action is hastened by gentle heat; pure gold in cyrstalline condition is completely precipitated and separated from a solution also containing mercury, zinc, lead, tin, etc.—PROF. F. J. MCINNES, *British Dental Journal.*

TIN CEMENT.

This new filling material, introduced at the Fourth International Dental Congress by Dr. Scheuer, is a mixture of zinc oxid and precipitated tin, forming a light gray powder, and may be mixed with any good cement liquid, using all the powder the liquid will take up, bringing it, by kneading more powder in with the fingers, to the consistency of very thick putty. It is very adhesive, and the instruments used should be coated with vaseline, which only seems to make the cement more impervious. —F. C. BRUSH, *Items of Interest.*

TO PREVENT ADHESION OF CEMENT TO INSTRUMENTS.

To prevent the adhesion of soft cement to instruments while operating, keep in a convenient place a small vessel, similar to the old-style salt-cellar, filled with violet talcum powder. Occasionally insert the instrument in use into the powder and it will effectually prevent the adherence of the cement to the instrument. Any talcum powder will be found useful, but violet is preferred on account of the pleasant odor. The same is applicable in working gutta-percha.—DR. G. MUNROE, *Review.*

A HINT ON IMPRESSION TAKING.

To prevent the plaster from flowing down the patient's throat when taking an impression, prepare the tray as follows: Puncture the impression tray near the heel, making several holes about a quarter of an inch in diameter. Build up the heel with wax to reach the palate, and from this carry a piece of sheet wax forward under the tray. When taking the impression the surplus plaster will be forced through the holes and carried forward by the sheet of wax under the tray, thus effectually protecting the throat. The same result may be attained by cutting a V-shaped piece from the rear of the tray and building with wax, as described above.—DR. F. W. STEPHAN, *Review.*

BANDLESS PORCELAIN CROWN.

The article in the December *Digest* on "The Bandless Porcelain Crown," by Dr. R. A. Pritchett, interested me, as I agree with him. My method of setting the crown is an improvement on cement alone. When the crown is fitted to the root and properly shaped, take a small portion of temporary stopping, heat and mold around the base of the post, press the crown to place, remove and dress off surplus, reheat and return to position, allow to cool, remove again, trim off any surplus, also any extending into hole in root, and cement to place. The temporary stopping is insoluble and seals the cement, preventing the fluids of the mouth from disintegrating it.—JOHN G. HARPER, *Digest.*

WIT AND HUMOR?

"Will be back in an hour," read a card on a not over-busy dentist's door.

The envious rival wrote underneath, "What for?"—*New York Tribune?*

"How much do yez charge for pullin' out wan tooth?"

"One shilling; five shillings with gas."

"Five shillin's wid gas! Begorra, thin, I'll come round agin airly in the mornin' whin it's daylight."—*Tatler*.

Queer, isn't it? Call a girl a chick and she smiles. Call a woman a hen and she howls. Call a young woman a witch and she is pleased. Call an old woman a witch and she is indignant. Call a girl a kitten and she rather likes it. Call a woman a cat and she hates it. Women are queer. If you call a man a gay dog it will flatter him. Call him a pup, a hound or a cur and he will try to alter the map of your face. He does not mind being called a bull or a bear. He will object to being mentioned as a calf or a cub. Men are queer, too.—*Schenectady Star*.

A patient phoned for an appointment. "To-morrow at 12.30," was phoned back. He came and on taking the chair said: "Queer thing. Yesterday when I phoned you this tooth (pointing to a bicuspid) was sore as the devil. Now it's all right, but the one next is as sore as the other was yesterday. What makes it? Cold?"

The dentist suggested "cold" as a possible cause.

"I must have got it," mused the patient, "on my way home *from* dinner Saturday night. I walked, thinking the air and exercise would do me good; but I now think a gentleman in my condition should have gone home in a hack."

"You have more women patients than men, haven't you, Doctor?" asked a charming young lady in the chair while watching preparations for an inlay.

"Several times as many."

"That's because they eat more sugar, isn't it?"

"Possibly."

"But my teeth decay and I don't eat sweet things."

"It's not necessary in your case that you should."

After a moment or two of thought she looked arch-like at the doctor, merely observing: "Isn't that nice!"

If an editor makes a mistake he has to apologize for it, but if a doctor makes one he buries it. If the editor makes one there is a lawsuit, swearing and the smell of sulphur; but if the doctor makes one there is a funeral, cut flowers and a smell of varnish. The doctor can use a word a yard long without knowing what it means, but if the editor uses it he has to spell it. If the doctor goes to see another man's wife he charges for the visit, but if the editor goes to see another man's wife he gets a charge of buckshot. When a doctor gets drunk it's a case of "overcome by heat," and if he dies it is heart trouble; when an editor gets drunk it's a case of too much booze, and if he dies it's a case of delirium tremens. Any old medical college can make a doctor. You can't make an editor; he has to be born.—*Factotum*.

THE

Dental Office and Laboratory

FOURTH SERIES

XIX. PHILADELPHIA, SEPTEMBER, 1905. No. 5.

PIONEER WOMEN IN DENTISTRY.

BY DR. JENNIE D. SPURRIER, SPRINGFIELD, ILL.

[Read before the Sangamon and Henard Counties Dental Society.]

Having been asked by your honorable Committee to give a paper on "Pioneer Women in Dentistry" I agreed to do the best I could; but, being far more familiar with dental instruments than with the pen, I may be pardoned, perhaps, for any lack of classical English or seeming incongruity of subject matter.

I have had but little access to statistics or authorities, so what I shall say is just what I could gather up and jot down from memory or experience, and, having to draw largely from these sources the material for this paper, you will, no doubt, excuse any seeming egotism in personal reference.

"Does dentistry furnish a field for the activities and helpfulness of women?" was a question asked by two or three women about fifty years ago, and they finally decided to enter into the new realm. They were met by the same persecutions and oppositions meted out to pioneer women in any line of human activity.

NO PLACE FOR THEM THEN.

The schools of dentistry were closed to women at that time. Men said that they would leave the schools if women were admitted, but, finally, Dr. Truman said he would admit women if it closed his school. They were admitted but they endured many indignities and were the victims of many epithets, being often assailed with spit-balls and vituperations. However, a friendly voice here and there gave them a little encouragement.

The Boston *Herald* of those times says: "A woman dentist is something of an innovation, but that she will make her mark in the profession is indicated by the standing of the young woman who has just been graduated from the Boston Dental College. According to the Dean of the school she stood number one in a class of thirty-five or forty and, in the race she has run, she is so far ahead of the fellow next behind her that she could hardly hear his tread."

It is through the fair-mindedness of such men as Dr. Cobb of St. Paul, Minnesota; Dr. Silvers of Missouri; Dr. Hall of Indiana and others like them, who came to the defense of women in this profession, that they have been able to accomplish something for themselves and their profession.

EARLY EXPERIENCES.

Two lady dentists, with whom I have communicated with regard to their experiences in early practice, relate about the same troubles and opposition that I have met with. One says: "When I was in the Dental School the boys were always intimating that we girls were weak in practice if strong in theory." But we were generally able to execute our part of the work. One's own family was inclined to look askance at one of its members in the female line who was learning dentistry. One of my brothers suggested that I learn blacksmithing. You, gentlemen, can hardly realize or understand the difficulties to be overcome by a pioneer woman thrown upon her own resources, without a dollar and with nothing to depend upon but her pluck and sticktoitiveness. She must face an unfriendly public, critical, jealous, and some dishonest practicioners of her own profession. They must be turned into friends, or at least silenced, before she begins to have an equal chance with men. Then, if she has enough vitality left to bring success in her chosen field, well and good; but if not, she is held up to scorn and made an example of redicule and failure.

SIXTEEN DAYS IN TEARS—"MY FIRST."

After having fitted out my office, gotten everything in readiness and adjusted the minutest details for practice, on January 1, 1876, my courage failed. I thought I had it screwed up to the sticking point, but it slipped a cog. This was brought about by the remarks of two prominent men of Springfield; one a judge, the other a banker, who learning of my intention of venturing into the dental profession remarked to my old preceptor: "What is the use of her starting into any such business? ridiculous! She had much better get a place and go to work at something that she can do." Now, these encouraging remarks having reached my ears, is it at all wonderful that I sat down and cried? I cried for sixteen days before I sufficiently conquered my fears to begin work. But, on the morning of the 17th of January, I hung out my sign and awaited the result with fear and trembling, peeping out of the window occasionally to see how the public took my piece of audacity flung in its face. At three o'clock in the afternoon a man from the *Journal* office (I wish I had asked his name) stepped into my office and asked me to extract a tooth for him. I promptly took the tooth out and he as promptly paid me fifty cents and stepped out. Who could describe my feelings? This was a partial realization of all my hopes entertained while passing through the struggles, privations and obstacles attendant upon my efforts to fit myself for the profession. And that dear little fifty cents! It is the nucelus around which others have gathered. I had Mr. Mart Spaulding engrave a *fac simile* of the tooth on that fifty-cent piece. Above the tooth he put the date it was extracted: "Jan. 17, 1876;" beneath, the inscription: "My First." This was the first trophy and premonition of my success in business. I have the fifty-cent piece with me if any of you desire to see it. I often wonder how many dentists can show their first money. The honorable gentlemen above referred to have changed from critics to friends.

JUST TO LOOK.

My experiences in the profession were varied. Many called, saying they "did not want any work done, but just wanted to see a woman that could pull a tooth." One old German came in and said: "Vere ist der Doctor? I vants a tooth pulled." I informed him that I was the Doctor. "Mine Gott in Himmel!" he exclaimed, "a woman pull a tooth! Me no believe in witchcraft." With that he fled in dismay and never returned.

I have given these incidents in order to bring before your minds some of the discouragements attendant upon the work of pioneer women in dentistry. But we get some encouragements too, which smooths over the rough places and gives us the knowledge that our work is not in vain, and that this is a good field for woman with her peculiar sensibilities, human sympathies and benevolent intentions.

FIFTH.

When I entered the profession twenty-nine years ago I was the fifth lady dentist in the world, and the first in Illinois, so far as I know. That, however, is between a lady dentist of Chicago and myself. At the time of the Dental Congress at the World's Fair in Chicago there were over three hundred. Now there are many more. The pioneer women have gone through the woods and scared all the spooks and ghosts and blazed a path, removing the brush here and there, and have thus made it possible for women to work in this profession with much greater ease, so that, today the ever lessening obstacles in the way, prejudice and criticism, do not require so much vitality to overcome, and this leaves the lady dentist of today the use of her strength to push to a much higher tide the wave of success than was possible with us pioneer women. And we older women, may we not justly expect kind treatment, a good degree of honor and a full measure of gratitude from younger women of today who enter the profession so easily and find success so readily obtainable? Without the least bitterness I say that we are sometimes called "back numbers" by these same young women.

COULD MANAGE LITTLE PEOPLE.

The success of two children, boys in whom I took great interest, give me very great pleasure. One was a little, blue eyed boy, who came to me in trouble. I could see fear in every feature of his face. I put him in the chair and chatted away to my assistant so coolly about two detectives that were standing across the street watching to see if a jeweler in my building, who had failed, should attempt to move any of his stock, that the little fellow, who got mixed up and thought they were plotting to steal from me, forgot all about the operation he was undergoing and looked up with surprise when I told him that I was through. That boy lived to be a man, chose dentistry as his profession, and is today a successful practitioner. That little, blue eyed boy is (I forego the pleasure). The other bright little boy, with black eyes this time, a manly little fellow, one I took a great interest in, and now look to with pride, wrote me a letter not long ago reminding me of the influence I exerted upon his life. I give you a few extracts from his letter. He says: "I remember well how I used to go up the stairs to your office to have work done, and when I got to the door I would stop from two to five minutes before I could brace up sufficiently to enter; and I feel sure you detected the fear and dread in my countenance, for you would greet me with your pleasant

'Good morning' and inquire; 'How is your mama? What a brave little boy you are to come up here by yourself.' That wonderfully alleviated my fears. Then, once in the chair, your true sympathy, kind words and extreme care and gentleness made me almost love you instead of hate you. I often think of a little remark you made to me during an operation, one which I myself use frequently. When you knew you were hurting you compared me to a soldier. 'Just think if this were an arm or a leg being taken off, how the soldier would bear it without a murmur or a sob.' Then I would not cry and you would compliment me and tell me what a brave soldier you thought I would make. I had thought for a long time I would like to be a dentist and you encouraged me to undertake the work. You said you thought I would make a success. So, when I decided to go to school a great hope of mine was that I should not disappoint you."

And now with what pride I look at my friend, who is enjoying a flourishing practice in one of the goodly cities of Illinois.

Noble Words.

In the words of Ella Wheeler Wilcox: "Don't look into the past. We leave all that and content ourselves with the knowledge of the good we do." Such remarks as those of Norman W. Kingsley, D. D. S., late Dean of the New York College of Dentistry, whose doors were once closed to women, amply repay the pioneer women. In speaking of women in dentistry he says: "A man must be less than human who can witness the uncomplaining struggle of women, often for her very existence, without calling out the very tenderest sympathy which one's nature possesses. I wish it were in my power—and from henceforth not another woman in all the world should have one anxious thought for her material welfare. No man shall excel me in the homage I pay to woman, in her sincere, unselfish and faithful devotion to her conception of duty; to her consistent and unwavering fidelity; to her truth; to her sympathy and consolation that she brings to the suffering; to her bravery in adversity; her serenity in affliction, and to her benevolence, her kindness, and mercy, and her truthfulness in all the relations of life."

"DESENSITIZING THE TOOTH-PULP,"*—LINE.

Dr. W. W. Smith:

Dr. Line, like most of us, means to be good, and I am sure my wife is equally solicitous of doing the right thing; but through a misunderstanding between Mrs. Smith and Dr. Line I did not receive his paper until this morning, so that I have had but a few minutes in which to look it over. Coming down the street this morning I glanced at a florist's window; it was beautiful. I hesitated a moment to admire it, but I was confused by its wealth; and if you should ask me now what I saw in that window I could not tell you much about it; and yet it left a deep impression. So of this paper. It is right to the point, and I find but one or two things to comment upon or criticise.

He speaks of the abuse of arsenic of years ago. Some of us remember that time; the only thing that saved patients and the profession from further harmful results was the frankness of the man who advocated its use as an obtundent to take it all back and correct the mistake he had made. I take it that Dr. Line thinks we may meet with similar trouble—not the same, but similar. Until we know the destructive changes effected in the pulp by high pressure anæsthesia, it behooves us to proceed with caution. Dr. Line speaks of the use of the bur in rubbing cocaine into the tubules, as preliminary to, or as a forerunner of this method of high pressure anæsthesia. That I think is something that we have all used. He spoke of the various applications and appliances which are more or less used, but did not mention the use of sharp burs and other instruments. I think most of us have got into the habit of neglecting our cutting instruments. We are not careful about keeping them sharp, and dull instruments inflict a deal of unnecessary pain.

He speaks of the matter of introducing the syringe for high pressure anæsthesia into the cavity of decay, and into the granular surface between the dentine and the enamel, thus spreading the effect by including more of the tubules. I think one would get a more direct and positive effect by drilling a little farther into the dentine.

I think it is generally conceded by those who are using high pressure anæsthesia that it is preferable at times to make a cavity in normal tissue. It necessitates the filling of this cavity, of course, and therefore calls for the exercise of discretion.

---

* See Dental Office and Laboratory for July, 1905.

INFECTION.

Dr. Line does not speak of infection by injection through the cavity of decay. It seems to me that septic matter must at times be carried into the substance of the pulp, and I think it has been demonstrated that this is sometimes the case. Cocaine crystals have been found in the pulp after this treatment, and if cocaine is carried into the substance of the pulp why doesn't it carry with it the septic matter that may be in the course of the syringe. I think, too, it has been pretty well demonstrated that a kind of trouble after the extirpation of a pulp by the use of high pressure anæsthesia has resulted which would indicate that it came from a septic matter, or from germs carried into the pulp and perhaps beyond the apex by this pressure. The cavity should be thoroughly sterilized or the application should be made in some healthy portion of the tooth.

I cannot understand why, if there is a disturbance, or a tearing loose of the contents of the tubules, also a tearing loose of the attachments of the pulp to the walls of the cavity, it would not interfere with the physiological condition of that organ. Dr. Line says that in cases of large opening at the apex, as in undeveloped teeth, he thinks there would be danger, but not in cases of an abnormal enlargement of the foramen in adults. I may have misunderstood him.* I do not see why there would not be danger in either case, but more danger in the case of the large opening at the apical foramen. Of course there are cases in which we are not successful. One of them is that of the filling up of the dental tubules, which would interfere with the channel through which the anæsthetic works.

There is a great field before us, but we should work very discriminately. I have used high pressure anæsthesia in but a limited number of cases. As long as there is the element of danger we should use the method in cases only where it is very necessary,—in hypersensitive teeth, where it would be impossible to excavate thoroughly and do good work in any other way.

DR. B. S. HERT:

I have used the high pressure instrument for a number of months and in a great majority of cases have had success with it. Occasionally there have been times when I have been unable to obtain any results whatever.

---

* He did. For "danger" read *failure*. The outcome would be practically the same in undeveloped and adult teeth.

Dr. Smith said (quoting from Dr. Line), that the cocaine penetrated the pulp. That may be the case to a limited extent; but I have drilled into a molor tooth, preparatory for a gold crown, and have obtained anæsthesia of that surface; but on attempting to grind into another surface I have had sensation, quite acute, which would seem to demonstrate that cocaine is not always absorbed by the pulp. It would show on one side an effect; on the other none. I have had cases where I have ground down to the pulp, injected directly into it and thus been enabled to extirpate. I could not understand why at times we obtained good results and at other times failed, but this explanation of Dr. Line's seems very satisfactory. I at first used the instrument much more frequently than I do now; it is a good thing in many cases, but at present must be used carefully.

Dr. W. G. Ebersole :

I have had considerable experience with the high pressure syringe, or high pressure anæsthesia. I have had one instrument in my office for a little over 18 months; that covers a period before the instrument was placed in the hands of the profession. It was a success, and to be without an instrument of this kind is to be without one of the essential things in our work. As stated by Dr. Line, it is a question as to what the future is going to bring forth as a result of this, in many cases, violent forcing of a solution into the pulp chamber. It is my belief that not only are the fibres torn from their attachments and driven into the pulp chamber, but that in many cases the pulp itself is forced away from the wall. As stated by the gentleman who preceded me, it is a question what condition is produced, or what the result will be.

In the Pulp.

Dr. R. Ottolengui, of New York, spoke before our Northern Ohio Society meeting last year, when this same question was discussed. He has made a study of the condition produced within the pulp chamber and he finds cocaine crystals distributed throughout the pulp itself, and has proven that conclusively.

Dr. Callihan, of Cincinnati, has made some investigation along that line; he also declares that the crystals are found throughout the pulp itself.

The question of infection is one of great importance, and one about which I am prepared to say but little. In a great majority of cases we have seen no inflammatory conditions of any kind.

There have been, however, one or two cases in my hands where infection has taken place that I could account for in no other way than by forcing through the tubules. I have two cases of that kind, and yet there may have been something that produced this infection otherwise.

It is true that it is too new for us to go ahead; it is too early for us to tell what the results are going to be, and personally I have always felt, and feel now, that the future is going to bring forth something that is going to cause us to go a little slow. I am looking for those things—expecting them,—and for that reason I am sticking closer to the use of the older apparatus, the cataphoric outfit; and I use that twenty times where I now use the high pressure syringe once. If I have a pulp to remove, then I may use the high pressure syringe; or a cavity that would be difficult to prepare, then I take up my pressure syringe rather than consume the time.

THE QUESTION OF TIME.

The time consumed in the application of cataphoresis may be cut down considerably by the use of assistants. I have in my office three lady assistants.

The patient is prepared, mouth sterilized, and otherwise made ready for the operation. If it is extracting, I never see the patient unless it is some special case. In the administration of gas I am not with the patient over three minutes. It is necessary that you charge your patients for the time consumed. If you have to give the entire amount of time yourself for the preparation, you must charge for it. But if you want to save for your patients and yourself, then put into your office and train assistants to handle the practice. A girl who has had no college training can take up this work. I have had assistants who had had no training whatever who were able to take care of these cases and prepare them thoroughly for my work.

I believe Dr. Line said that in the case of children that there was danger of the cocaine solution passing around the pulp to the apex without affecting that organ. That may be the immediate effect, but if one waits a short time he will be surprized to find the tooth completely anæsthetized.

I take issue with Dr. Myers that he can anæsthetize the pulp thoroughly within a minute. I have had cases in which I have consumed more than an hour in getting results. I had one case in particular in which I failed absolutely in the use of the high pressure syringe. I wanted to remove the pulps from four teeth, and in spite of all I could do the minute that I put pressure upon the instrument the patient complained of pain; I spent more than an hour in trying to desensitize that tooth, and failed. I made a number of openings and tried in different places to get cocaine in, but failed.

In the Apical Space.

There is one thing in regard to the forcing ot a solution into the pulp chamber that has not been taken up by men who discuss this question, and that is the effect that may be produced in the apical space by high pressure work. One needs to be careful when about to remove the pulp. The method of procedure is like this: We go just the slightest into tooth, then put on the pressure; cut a little deeper with No. ½ bur, cutting and forcing alternately. The great danger to look out for is cutting close to the pulp chamber, forcing a quantity of the solution directly into the pulp chamber, and thence into the apical space, getting alarming symptoms. I have seen a few of these cases that would make a man's hair stand on end. The best description of that was given by a lady who said that if I had taken a mallet and hit her on the head I could not have produced a more violent heart action. If much goes through you will get conditions that will interest you very thoroughly for a few minutes; but unless the amount is large, those conditions will soon subside

It is necessary to have a slight countersink for the instrument itself; it lessens the danger of cracking the enamel; and there is one of the greatest dangers in connection with the use of high pressure anæsthesia. I have seen quite a long crack in a tooth resulting from the use of the high pressure instrument; and while it seems to be almost essential that a portion of the enamel remains in order to get a tight application yet at the same time it is one of the things that makes one many times hesitate to use high pressure, unless he makes a very large countersink. I know of several cases in which the tooth itself has been split and quite an amount of damage done.

CATAPHORESIS.

These things are to be used carefully. We do know what can be acomplished by the use of cataphoresis. There is one great thing in its favor—we do know that there is no forcing of the contents of the tubules back into to pulp chamber, or stripping of the pulp away from the walls of the tooth. There is no danger of that; and while it requires a little more time, for the present I am going to hold pretty closely to cataphoresis. I try to be a little conservative along some lines.

I find that in many cases that I can prepare a tooth quicker by the use of cataphorsis than I can by the use of the high pressure syringe, unless I make an extra cavity for that special purpose, in some portion of the tooth that will not be included in the cavity I wish to fill.

Another thing I intended to mention—Dr. Myers has upon the market a syringe with much longer handles. One of the greatest objections was the strain upon the hand in getting force enough, and many dentists complained. He has increased the length of its handles and now we do not have that trouble.

The fact that the tooth is likely to chip or crack or break upon the slightest movement of the patient makes it a very difficult matter to get a complete adaptation of the needle to the walls of the cavity. I want a great deal of time to make that application. I am opposed to a separate cavity for that purpose, especially while we have something else that will do the work without requiring an extra cavity.

R. H. HOFHEINZ:

I think one of the most important things in treatment is to discriminate between mere sensitiveness and hypersensitiveness of the tooth. It takes longer to anæsthetize the latter.

PULP STONES.

You will find the same difficulty in pulp stones; their presence, not only in pressure anæsthesia, but also in the application of arsenic. I have listened to many statements in dental meetings to the effect: "I have put in arsenic and failed to kill the pulp;" and I think it is due to nothing but the obstruction which did not allow the arsenic to act beyond the pulp stone itself. I think that the cataphoric current, which undoubtedly carries the drug itself, will more readily affect the pulp. There is a secondary deposit in these cases in the pulp itself.

It was said by a member at a recent meeting in Buffalo, that at least one tooth had not responded to tests for sensitiveness, after he had used the high pressure, for a week. The question arises, if you anæsthetize a pulp and it remains in that condition for a week, whether it is not desirable to have a gradual recurrence to the normal condition than a recurrence after two hours. It may be that the rapid filling of the blood vessels is possibly more dangerous than mere pressure.

The question of the number of tubules to be included depends entirely upon the amount of area that you expect to excavate. In excavating a cavity for the purpose of inserting a filling you very likely have to include more tubules than you would in, perhaps, extirpating a pulp, because you can use your mechanical instrument directly to the pulp with the aid of a small bur.

UNEQUALLY DIFFUSED.

I have had some wonderful results, as well as some failures. The question of the pulp being penetrated by the cocaine, and one side of the tooth only responding to the effect, I doubt very much whether that would be generally the case. It is only a question of penetrating the pulp. You have a certain amount of tissue to penetrate in the pulp, and yet there may not be sufficient anæsthetizing effect to act upon the distal part.

In speaking of sensitive dentine, I have always made a division between the therapeutic treatment and the mechanical, to which latter the burs belong. The mechanical itself is not only the sharp bur; it is also the closing of the cavity temporarily with any one of the filling materials. Excepting the filling itself contains a chemical agent, it has no chemical effect. Remove the chemical and we find that the filling has merely kept out the fluids of the mouth—acted mechanically. Then we have the electro-chemical treatment, and last of all we have the high pressure. But it seems to me before we go into anything of that kind with wholesale enthusiasm, we have got to know just exactly what the effect of pressure and drug has upon the structure of the pulp.

W. W. SMITH:

With regard to the duration of the anæsthetic effect upon the pulp, it is spoken of as a matter of a few hours. It has been very clearly demonstrated to me that it is a matter of not to exceed two hours. In the case of a porcelain inlay I ground down a very sensitive tooth, and before I could complete the operation the tooth had become normally sensitive. In several cases hypersensitive teeth, cases of labial cavities, where I have inserted porcelain, the final work on the tooth has been on normally sensitive tissue, and the time would not exceed two hours.

Dr. Ebersole:

I have seen cases where cocaine has produced anæsthesia of the entire side of the face, nearly, and yet in a short time the pulp was sensitive again. That case was experimental and we did not see the pulp in two hours; but we saw it four hours after that, and the pulp was sensitive. The gums showed a decided blanching. We got that of course from the action of the adrenalin. The injection was made slowly and with a view of affecting the tissue at considerable distance from the base of the root, and yet that was decidedly sensitive in four hours time. I think a test of that kind would eliminate the question of two or three days.

Dr. Proseus:

I think that after the extirpation ot a pulp without hemorrhage you are apt to have a sore tooth; I have found that to be true in cases which I have had. Get hemorrhage after the extirpation of the pulp and these teeth are not apt to be as sore as those that remain perfectly dry and clean. If you use adrenalin on the pulp you get less hemorrhage, and I have found in cocaine work the result of the anæsthetic has been fully as good without as with it. I would like to know what those who have tried both ways have to say on that.

There is another point that occured to me in connection with secondary dentine: I cannot say that I know positively whether secondary dentine is sensitive or not. If I can recall the cases at all, it is not as sensitive as normal dentine. Therefore why not drill the hole almost to the pulp?

Dr. Line:

Dr. Smith mentioned some things incidentally. One of these was with regard to the boring or grinding in of cocaine. This is one of the things that I have indulged in for some years. I always use a cocaine solution as a lubricant, in these cases, for burs and wheels. The structure of burs and wheels suggests so many cogs. Turn those against the ends of the tubules, having them wet, and you simply push and pound the solution into their ends. You may drive some other matter with it, but the solution goes, and by giving enough time you have the surface cocaineized very much in advance of the bur. Turning the bur backwards now and then hastens the effect.

Sharp instruments have been spoken of. I call to mind that some years ago Dr. A. H. Brockway read a paper before the State society. He had much to say about sharp burs. The question at that time was how to overcome sensitive dentine. The best way out was said to be through a dry cavity by means of sharp instruments. The question of the spreading of cocaine in the granular layer is an interesting one. Those of you who were at Buffalo and met Dr. Myers last October, saw a number of specimens that showed this thing beautifully. He exhibited teeth which he had injected with black ink. The ink spread in the granular layer as on a bit of blotting paper. Then it narrowed down to the number of tubules that carried it to the wall of the pulp chamber; here again it spread on a tissue that was undergoing calcification—in section the shape of a spool both ends very much spread, and the center comparatively narrow.

The question of driving septic matter into the pulp chamber is an interesting one, and there is no reason in the world why septic matter, if present, should not accompany the cocaine on its way to the pulp. The question of forcing germs through the tubules is a secondary matter. It has got beyond that, except in broken down dentine close to the pulp. One does not need to take the manufacturer with him, but merely his product; that alone is capable of doing the business.

Dr. Hert said that he had got one part of a molar pulp well anæsthetized while the other was left quite sensitive. The general supposition is that there is an even distribution of the vessels throughout the pulp. This is not the case, and the blood current is not always in the most favorable direction. All these things count when one studies the effect of cocaine on distant parts of a given organ.

Another thing must be taken into consideration in forcing cocaine into the pulp chamber, and eventually into the pulp. It must go into the pulp itself, otherwise it cannot be got rid of. It gets into the circulation, but for anæsthetic effects it must be got into the pulp faster than the blood vessels can carry it out. They begin the moment the cocaine is injected. Unless got in a little faster than they can carry it away, the effect on the pulp is not what the operator usually anticipates.

FEES—"A BUSINESS PAPER."

As to the dentist charging according to time, I can readily recognize in dentistry rather more than in some of the other specialties that time must be a chief factor. In connection with major surgery it is hardly a factor at all. Some of us know the story attributed to the famous Dr. Agnew, who charged $10,000 for an operation on the eyes that took only five seconds. When asked if it was not a large amount to charge for so short an operation, he said, "Yes, but it cost me a bucketful of eyes to learn how to do it successfully."

The paper was not intended to have anything to do with philanthropy ; it was intended as a business paper. I am as fond of doing good to the poor as others, in spite of my reading a paper like this. When the paper was criticised by my friend Dr. Jarvie, when he said he did not quite like the tone of it, it forces me to say I devote four half days every week to charity operations, charging nothing at all ; and I do not think that is very exceptional among our professors of surgery. I love to do the kindly thing, but I do not do that exclusively for kindly feeling, either. It makes me the better surgeon. After a man has operated five hundred times for appendicitis, he is a better and a safer man than if he has only operated one hundred times ; but I wish just as Dr. Jarvie does that we did not have to think of the business end of it at all, and that we could ignore our families and think only of the glory and enthusiasm of our profession, and forget our pockets.

The Chinese system would be a lovely one, where they charge, as I am told, as long as the patient keeps well ; when he becomes ill, the income stops at once. That would not apply so well to dentistry, however.

GRATITUDE AND GENEROSITY HAND IN HAND.

I think perhaps what I am about to say is a little cynical—but my most grateful patients are the ones who pay the largest bills. A certain wealthy patient once paid me a bill of $2,500 for saving his upper extremity from septic infection. With tears in his eyes he shook both my hands, and said he would never forget me and should always be grateful. Shortly after that I did that same operation for a man in one of the hospitals I visit, and when he was ready to be discharged, as I walked through there one day, he said, "Well, good-bye, Doc. I will never cease to be grateful to you." I said to him, "By-the-way, what is my name?" He got red in the ace—he had that amount of shame—and then said, "Really, I had not thought to inquire." All that time there was a card hanging to his cot with his name as patient, and mine as operator, and his gratitude was so deep that he did not even look to see my name. If he had paid a good round fee he would have remembered me!

I will just wind up by telling you another instance in my practice. Some years ago I did a certain operation for a Jewish family. It has been my experience that among our best and most honorable patients are the Jewish people. They have not "Jewed me down" at all. I had to do a skin-grafting operation upon the face of the mother of the family. The skin of the old lady did not live; she had too little vitality. I took some grafts from my own arm (to my wife's indignation—she saw the scars about six weeks afterwards), and those grafts lived and took beautifully, and there was finally nothing in the way of a scar to be seen on the old lady's face. The family was delighted, and very grateful to me. Then came the question of the bill. I did not like to send the bill for "so many fractions of Dr. Dawbarn," and I did a reckless thing—as some might think, in the case of a Jewish family—I sent a blank bill, saying that whatever they thought was right for their mother's operation, I thought would be right, too. I got a check for $1,000 from that family of moderate means, and also a letter which I value more than I can say. In it they said, "If the amount sent is too small—or too large—we will never forgive ourselves, either way."—DR. DAWBARN, *Items.*

SHOULD ROOT CANALS BE ENLARGED.

Reference to reaming, drilling, scraping, and acid cutting in root canals is so frequently met with in our current literature as to indicate that some dentists seriously attempt to enlarge canals in all cases before filling them. Others solemnly mention schemes of canal enlargement as a remedy for difficulties encountered in small flattened and crooked canals in roots of unknown form, *in situ*. Each refers to his favorite method of canal enlargement as if it were an entirely feasible and harmless operation.

To dispel, if possible, this mischievous delusion let me make a few remarks and one suggestion: After years of study, practice, observation and experiment, I find root canal enlargement *unnecessary* where it is possible, and *impossible* where it seems necessary. This conclusion refers to canals in which pulp extraction and root filling are to be practiced for the benefit of the tooth.

It is evident to those who have examined a large number of canals in extracted teeth, and have observed the operation of instruments in them, that a majority of canals can be better cleansed and better filled without enlargement, for the natural surfaces of these canals are smoother than any drill or acid will make them, and also better adapted to the easy sliding of a broach or root filling to the apical foramen.

Knowing that we have no root filling impervious to water or bacteria, it is obvious that the smaller the canal when filled the less will it leak and the less foul matter can it contain, as a result of leakage from either end. These two considerations should alone be sufficient to forbid the enlargement of any reasonably round, straight, or easy canal, or any canal in which a broach can be operated.

But what of the small, crooked, flat, irregular canals, situated as they are in roots of corresponding form? If any man, by the use of drill or acid, thinks he can enlarge these to their apical foramen without anywhere perforating the side of a root, let him try his method in such canals in extracted teeth, where he can see the result.

WOULD LIKE TO SEE IT DONE.

Let any advocate of reaming, drilling, scraping, or acid cutting in root canals come prepared to a clinic and enlarge from pulp chamber to apical foramen any four out of five canals in extracted teeth which I shall submit to him. We want a few demonstrations of this kind to show what actually happens. It will be admitted, however, that successful performance of the mere mechanical operation in an extracted tooth, with all the advantage of light and position, and certainty as to the form of the root and position of the foramen, does not bespeak a like success in the mouth, where these advantages are wanting and nothing is known, excepting what is seen or felt at the coronal end of the canal.

The vital phenomena to be reckoned with in a practical case remain to be considered even if no mechanical obstacle prevented a drill, or a broach, wet with sulphuric acid, reaching the apical space through the foramen. So I doubt both the possibility and the wisdom of such an operation.

Interference with the apical tissues and the larger body of root filling necessary in a drilled canal are in themselves objectionable, while a part of every flat canal must remain unclean after all that drilling can do. The weakening of the root, the danger of irritation, perforation, infection, breakage of instrument used, the time and labor lost and the discomfort of the patient, ought surely to be considered before attempting an absurd operation in the mouth which you cannot perform in the laboratory.

Personally, I find no reason to enlarge "easy" canals, and no hope of success in any method proposed for difficult ones, so I do not ream at all. If a canal is too small to admit the finest broach, and all has been done that cleanliness, drugs and dryness will do, why not fill over it and enjoy the chances in it's favor rather than incur the alternative labor, vexation and danger, to make it's chances worse?

FUTILE AND DANGEROUS.

To the commandment, "Thou shalt remove all pulp," I desire to render obedience, provided, "if thou cans't" is added in amendment. But where the finest broaching methods, assisted with such solvents as papain fail to remove a pulp, it is surely better to let it alone than to blindly drill the course of the canal to its first curve and there perforate the side of the root. And if the canal is too small and crooked to admit a broach, how is sulphuric acid to help you?

The driller of canals may rest assured that no operator, however superior to himself, can successfully operate a broach in a crooked canal in which any kind of drilling has been attempted. For the point of any drill, however flexible the shaft, upon arrival at a curve will make a pit in the wall of the canal which a broach point will not pass.

Try any drill made or any sulphuric acid process in a little flat canal found in a crooked root, first noting the position of the apical foramen under a magnifying glass. Push your drill or your acid to a finish, and note what that finish is. Try several canals and observe carefully the result. Split the roots afterwards with a hammer and examine the results of your work from the inside; use your glass.

Whoever will try these simple experiments will need no one to tell him how absurdly futile and dangerous these canal enlargement schemes are.—DR. W. C. GOWAN, *Dominion.*

THE PRACTICAL PLACE.

QUICK INVESTMENT MATERIAL.

For quick investment for soldering bands, clasps and teeth, the following mixtures may be kept on hand ready prepared: Equal parts of prepared chalk and fine sand, kneaded in glycerine, making a plastic mass similar to mouldine.—*Hints.*

TO PROTECT INLAYS FROM MOISTURE.

To prevent moisture reaching the inlay after seating it in place, cover with the surplus cement and firmly press a piece of tin foil over the whole. This will adhere for hours and is, of course, absolutely imprevious to moisture.—DR. C. B. ROHLAND, *Review.*

REDUCING THE MELTING-POINT OF LEAD.

Pure lead cannot be poured upon a Babbitt metal die. The melting point must be reduced by addition of one-sixth tin. This must not be poured hot as it comes from the heater, but stirred until it begins to attach to the sides of the ladle.—*Dr. L. P. Haskel, Times.*

STERILIZING FLUID FOR DENTAL INSTRUMENTS.

Dr. J. Leon Williams, in the May *Cosmos*, gives the following solution for sterilizing instruments without rusting them. Make a saturated solution of borax in a twenty per cent solution of formalin. It is practically instantaneous in its action as a germicide, and instruments may be left for weeks in it without rusting.—*Register.*

DRILLING SORE TEETH.

When necessary to drill into a pulp chamber having an acutely-inflamed peridental membrane, take two pieces of soft modeling compound and adapt them to the lingual and buccal surfaces of three or four adjacent teeth. When cold they will serve as splints to hold the teeth firmly, and prevent the irritation incident to the drilling of the tooth.—*Review.*

LOCAL OBTUNDENT.

Melt together in a test tube equal parts of menthol and cocaine, and add an equal amount of carbolic acid. Keep in a well-stoppered bottle. Before applying the solution to the dentine, wash the cavity with a warm alkaline solution and dry with alcohol and warm air. The lotion may also be used agreeably when scaling teeth or fitting crowns and bands.—*Era.*

TO HASTEN THE SOLUTION OF GUTTA PERCHA IN CHLOROFORM.

Chloropercha gets out of service now and then when it is much needed because of loss of chloroform through evaporation. To get it into shape again for immediate use, add the solvent and immerse the container in a dish of hot water. The chloroform begins to boil forthwith and the material is ready for immediate application.

IMMEDIATE ROOT FILLING.

If there is an apical abscess and a fistulous opening through the process and gum, fit a gutta percha filling into the cavity of the crown and root, leaving a hole through it for the point of a syringe. Inject with pressure a disinfectant solution through the root and fistula. Dry out the root and fill with the following preparation on a rope of cotton : Peruvian bark and iodoform equal parts, and made into a paste with glycerine. After packing the dressing in the root, use wax or unvulcanized rubber to make pressure and force liquid out of the root and through the fistula : remove the wax or rubber and fill the cavity with cement and paint gum with iodine.—DR. BROOMELL, *Brief.*

ANCHORING LARGE GOLD FILLING.

Though it has been used before, as a principle, a new thing is the filling of the first third of occlusal, buccal and even approximal cavities (if deep) with cement, and while it is yet soft, force a large pellet of well-annealed gold into the mass with a large serated plugger. Cut away the surplus cement so that none will reach the margin, and then burnish back the edges after the cement has set; build up with annealed gold, hand pressure, until near the surface, then use the mallet. Dr. W. I. Brigham, of Massachusetts, gave a very fine clinic of this method, saying that oftentimes the same retention that inlays called for was all he made, and if one's filling is thoroughly anchored in cement, it surely is as safe as an inlay, for your margins can be even better protected.—DR. H. G. ATWATER, *Gazette.*

PREVIOUS SEPARATION FOR CROWNS.

If we expect to make a crown that will bear inspection and will not be a menace to the integrity of the tissue in the interproximal space, we are called upon to consider another important condition, and that is to have complete separation. There is a strong inclination among practitioners to avoid this most necessary procedure. Too many of us have removed crowns where the contact extended from the gingival margin to the occlusal or incisal surface. The dollar seems uppermost in the minds of many dentists, and they try to convince themselves that it is better to make the crown at once and place it in position than to take the time to separate the teeth and run the risk of losing the patient. These crowns may preserve the root of the tooth, but they do much harm to the gums and health of him who wears them. They also are failures.—A. M. LEWIS, *Review*.

PYORRHOEA TREATMENT.

First thoroughly scale the teeth, and then wash out the pocket with hot antiseptic solution, use plenty of the irrigant and as warm as practicable and enough force to dislodge all debris of an infectious and extraneous character. Make a solution of cocaine in chloroform, about a 10 per cent solution with a few drops of oil of cloves. Apply the cocaine solution to the pockets and then thoroughly curet the dead tissues, being careful to thoroughly cleanse the roots and remove all necrotic tissue. After thorough irrigation, apply a 10 per cent solution of sulphuric acid, by means of cotton on platinum broach to every part of the pocket. Then let the case rest three days and again irrigate with hot water and apply a 10 per cent solution of tri-chloracetic acid and three days later a 10 per cent solution of nitrate of silver after thorough irrigation. From this on it is simply a matter of keeping the teeth and the mouth clean and in a sanitary condition. Be careful in using the nitrate of silver as it will discolor the teeth.—DR. L. G. MITCHELL, *Western*.

SENSE OF FEELING A GUIDE IN FITTING BAND-CROWNS.

I do not like to benumb the gum when about to fit a band-crown ; the sense of feeling on the part of the patient, serves to indicate when the band is shaped to fit the root just beneath the free margin of the gum. One may impinge on the soft tissue, but it is neither desirable nor necessary to cut into it to any great extent. Indeed, when the band is put on for the final adjustment it should not even blanch the gum ; if it does it is pressing the parts and will later cut deeper and induce recession of the affected tissue. When the gum has been wounded in grinding the root or in reducing the band to root-level, the acid of the cement works into the wound and gives rise to discomfort similar to that following the application of salt or vinegar. This of course subsides as the cement sets, but is anything but pleasant while it lasts. To overcome pain thus inadvertently induced and to head.off that that may attend the setting of the crown, I dry the root and adjoining gum and paint them with chloropercha. The effect is immediate and the discomfort hardly worthy of mention.—Dr. I. C. Edington.

Painless Treatment of Diseased Pulps.

Dr. Gillette Hayden, Columbus, Ohio, presented a novel method for the painless treatment of diseased pulps by using the following formula :

Liquid.

Eugenol	ounce ½
Black's 1, 2, 3	drams II
Oil of cloves	Gtt. XX
Oil of cinnamon	Gtt. XV
Oil of cassia	Gtt. XV

Powder.

Oxide of zinc.

The liquid and powder are mixed together similar to a cement and placed in cavity of either temporary or permanent tooth after removal of superficial decay. The application is most soothing in its effect and is easy of introduction, especially in children's teeth, as contact with saliva does not affect it. In about twelve hours a thin crust is formed and will allow of mastication. It becomes chalky at first, but becomes perfectly hard in about two weeks. It makes a splendid temporary filling, but should be replaced about every two months. It seems as though this is just what we have needed, and should be given a fair trial to test its efficiency.—Dr. W. J. Taylor' *Gazette.*

NAPKIN AND COTTON ROLL COMBINATION.—A FURTHER SUGGESTION.

The *Office and Laboratory* for March illustrates a method of using these absorbents advantageously. Two sections of roll are cut about an inch in length and placed one in each of two corners of a small antiseptic napkin which is then made into a roll. The center is less bulky, and by twisting this part of the roll is much reduced in size, so that when the ends which contain the cotton roll are placed on the lingual and labial surfaces, the twisted or reduced part of the roll which has no cotton in it passes over the teeth and so does not obstruct the operator's view of the operation. It can be held in place by the fingers or a clamp as may be desirable. We would suggest that the cotton roll be cut diagonally instead of at right angles, and that the diagonal ends be placed toward the center. This will avoid the square shoulder that may be in the way at the point of the operation. We would also suggest that the farther ends of the cotton roll be placed nearly an inch away from the corner of the napkin, so that the sides of the napkin may be turned up over the ends of the cotton before rolling. This will prevent the cotton from slipping out of the napkin and prevent the raveling of the napkin. These threads often get in the way and are a source of annoyance. Where a long roll is required, place the cotton on the diagonals of the napkin.—*Register*.

NOTE AND COMMENT.

SIMMONS-THOMPSON.

The announcement has been many years on the way, nevertheless it affords a host of friends the long-looked-for opportunity to congratulate the genial representative of Johnson & Johnson, Dr. Bert G. Simmons, on his marriage to Miss Margaret L. Thompson, at Maryville, Tennessee. The date of the happy event stands on the calendar as June 27th, '05.

THE PLACE FOR IT.

In the paragraph, "Button your Cement," in the March issue we failed to mention the fact that for convenience and safety the button should be stuck or tied to the bottle from which the powder is taken. Attaching it to the cork may lead to confusion and loss of both material and time; corks have a bad habit of finding their way into the wrong neck.

THE WILLIAM JARVIE RESEARCH FUND.

At the late meeting of the Dental Society of the State of New York, President William Jarvie gave the society the sum of $1,000, the income of which is to be devoted to the reward of scientific research. The acknowledgement will take the form of a medal and will be conferred upon a member of the profession whose work of the previous year is judged to merit it. Dr. G. V. Black is the first to be thus honored; like that of Abou Ben Adhem his name will henceforth lead all the rest.

HE WANTS TO KNOW.

A Constant Reader asks: "Is pyorrhea as prevalent—constant and extensive—in mouths containing much amalgam as in those containing much gold, gutta percha, or cement? Is there anything in amalgam that inhibits the development of this 'local manifestation of a constitutional disturbance'?" Careful now! Don't answer until you have looked into the matter with special reference to the questions. Revising opinion is too much like eating humble pie; the hasty have no relish for either.

WHEELS.

Wheels are all right even in a man's head, provided they hold their place and do not go too fast. They are quite as good in the patient's mouth, provided they are not too large, provided also they are not too coarse, provided again they are not untrue. A large wheel of any grit, a coarse wheel of any size, an untrue wheel of any kind whatever ought to lead to the reading of the riot act and the calling out of the militia. If you have any doubt about the truth of these statements try it or have it tried on one of your own teeth, especially one of the upper jaw, and then marvel that people ever visit the dentist the second time.

"BECAUSE."

"Why no 'Note and Comment' in the July number?" My dear fellow, seven full pages at the very beginning were all the Sanctum thought it wise to inflict on the long suffering reader at one time. Too much of a given thing, good or bad, maketh a mess of an otherwise passable meal. To aid and abet digestion is one thing; to overload the stomach is to invite aches and pains even to the verge of nausea. In the words ot the late Col. Ingersoll, "Let us reason awhile together," and the outcome will be a plethora of lore, real or alleged, that bears the stamp of things dental. "We have spoke."

GOLD MEDALS AND CASH.

With the desire of stimulating original investigation relating to dental and oral science, the New York Institute of Stomatology offers two prizes: First, a gold medal and $250; second, a gold medal and $100, under conditions easy to comply with provided one has the necessary knowledge and the wit to skillfully manipulate it. The papers in competition must be in the hands of the executive committee by March 1st, '06. Dr. C. N. Johnson, Chicago, Dr. E. A. Smith, Boston, and Dr. W. F. Litch, Philadelphia, have consented to act as judges. Information in detail as to conditions and rules may be had by addressing Dr. F. Milton Smith, 38 W. 36th St., New York.

BE REASONABLE WITH THE BOOKMEN.

"Most people frame very untrue, and often very absurd conceptions of those who write books. They expect to find them differ from average persons in conspicuous ways. One may say that as a rule no man is equal to his book, though there are, I believe, exceptions. All the best products of his mental activity he puts into his book; where they are separated from the mass of inferior products with which they are mingled in his daily talk. And yet the usual supposition is that the unselected thoughts will be as good as the selected thoughts. It would be about as reasonable to suppose that the unfermented wort of the distiller will be found of like quality with the spirit distilled from it."—*Spencer.*

A WHACK AT YE REGENTS.

In the course of his camparison between the methods of his own and those of America's greatest university, President Hadley is credited with saying: "The Harvard paper seeks to test knowledge; the Yale paper seeks to test accuracy. The Harvard examination tries to find how well the boy has done his work in school; the Yale examination tries to find how well the boy is going to be able to do his work in college." According to a newspaper comment, "Either plan is an improvement on the old method of the Regents of the State of New York, which was to propound conundrums which they themselves could not answer." And it will require several more inoculations to render the Board immune to the microbe of methods that date from a time that a certain ancient lady bit into a forbidden apple.

HONORED THEMSELVES.

It may not be amiss to call the attention of the middle-aged and younger members of the profession in attendance upon the National Association Meeting at Buffalo, to the rare honor they did themselves when they greeted and shook hands with Dr. Coryden Palmer, one of the few men left of a day when dentistry needed more than now the self-sacrifice that made possible our present professional ideals. Time that could not be spared; money that came of long hours and hard work; energy that should have been conserved as an offset to the normal waste of coming years,—were freely given by this grand old man and his associates of that period, most of them long since dead, that the profession of to-day might inherit the things that too many of us regard as of our own building. Eighty-six years in the world, with sixty-six of them credited to active practice, is a record vouchsafed to but few. "And still doing something; not much, to be sure, but something;" was eloquent even in the voice belonging by right to the feebleness that comes of extreme age.

MUST HIMSELF HAVE SUFFERED.

Dentists as a rule are considerate of the feelings of the patient, but the one most likely to forget that he is working on material very much alive is the man whose boast is, "I have never known a day's illness in my whole life." This most fortunate of men is without the record that breeds fellow-feeling when another is under the knife, hence the necessity for constant lookout on his part that he does not crowd the less favored too close to the wall. The experience of Herbert Spencer, whose time limit for work during the dictation of his System of Philosophy was three hours daily, with functional disorders that would have driven the traditionally strong-minded man into a mad-house, is tersely expressed in the following excerpts from his account of his long and remarkable career: "There go two things to the production of sympathetic behavior. The one, an ability to enter into another's feelings, which is *moral;* the other, a perception that those feelings exist, which is *intellectual.* * * * For as it is true, physically, that we cannot duly sympathize with pain or illness until we have suffered them, so it is true, morally, that until we have borne unhappiness we cannot have a strong fellow-feeling with it."

"HOW OFTEN, DOCTOR?"

This is the stock question with the patient when the dentist suggests a little more effort, time and care in the matter of cleansing the teeth. "As often as necessary," is the stock answer. This, however, is indefinite, therefore unsatisfactory to people who do things by rule when they do them at all. The average patient must be pinned down to routine, otherwise the good work is done only with reference to his personal convenience.

We have in mind a good physician who never gave his patients any working margin. His theory was that the patient could not be trusted, whether with medicine or with the time for taking it. "One teaspoonful every hour," meant that quantity in that time, no more no less. The patient followed directions to the letter, or his caretakers for him, with the result that effects were obtained, and the doctor was put down as "an exact man; no guess work about him." Some men are cut out to "boss;" the great majority are built to be told what to do and when to do, and how it shall be done.

"How often shall I brush my teeth, Doctor?" was asked of a fellow practitioner, as it frequently has been asked of us all.

"As often as you say your prayers," was the answer.

"I'm afraid I'll neglect them if I adopt that rule."

"Then brush them as often as you look towards Mecca."

"How often should I do that?"

"Five times a day; first thing in the morning, the last thing at night, and once after each meal."

"Not oftener than that?"

"I said FIVE times; and I mean religiously each time."

That rule works where "*about* five times" would fail utterly.

Another professional friend tells his patients: "Never let your brush get dry."

"Keep it in water, Doctor?"

"No; in use!"

"THE COMMON PEOPLE ARE 'ONTO' US."

Not long since we wrote a fellow-member of a certain society for his recent contribution to dental prophylaxis—"How we Sterilize in Geneseo;" but for reasons that shall continue confidential we failed to get it. Memory, however, serves us to better purpose when it comes to the essayist's contribution to the discussion that followed. To illustrate the interest taken in things bacteriological by every-day folks, he cited the case of a character typical of the small town the world over,—observant, interested, practical, and withal ready of speech. It seems that Pat has a wealthy neighbor who grows potatoes along scientific lines, costing him three dollars a bushel, to be sold on a market that brings but forty cents. This man is in touch with Washington, and when anything worth jamming into the soil comes to the knowledge of the experts at the capital he gets his share for experimental purposes. Pat heard news and forthwith betook himself to the farm that is worked on scientific methods. On his return to "the store," he told of his discoveries.

"Ye see, it was like this: The virgin sile contains nithrogen, and it's all right if ye lave it there. But ye don't. It gets into the potaties; bye and bye there's none left and your potaties don't grow, or if they do they rot on yer hands. Ye see ye must get the nithrogen back into the sile. Well, Mr. Blank, he sends to Washington fer some boogs that put the sthuff back where it belongs, and soon ye have potaties as good as the best. But man, they'r black, black as yer hat. And *shmall*; they'r that shmall that ye have to have a powerful magnifyin' glass and five dhrinks af whiskey straight to see thim." Things as small in dentistry have been seen without the magnifying glass.

The teller of this story is the same man who promises us in lieu of the above paper a series on "Impressions and how to take 'em ; False teeth and how to make 'em ; Bad mouths and how to fit 'em ;" adding, "and they'll be all right, too." Let us hope they may ; also that he will not forget that papers and not promises are the things needed to fill the pages of a dental periodical.

MEETINGS.

The American Society of Orthodontists will hold a three day's meeting in Chicago, beginning the 28th of this month.

The Northern Indiana Society will meet at Logansport, the 19th and 20th of the current month.

The Southwestern Association has announced its meeting for Creston, the 10th and 11th of October.

One of the far-famed union meetings of the Seventh and Eighth district societies will be held at Buffalo, beginning October 31st.

The National Association Meeting at Buffalo, in July, measured up to the expectations of the most sanguine in attendance, and in doing so fully demonstrated its national character and its right to be. It was a large gathering, too large as usual to be wholly compassed by those who would see and hear all that it had to offer. This is a short-coming, however, inseparable from bodies of large membership having great quantities of matter of equally great variety to consider and dispose of. The feast consisted of many dishes of many kinds, but wise men and others curbed their appetites and partook sparingly ot what had been spread. Papers were read and discussed in the section meetings, a number of them at one and the same hour ; table and chair demonstrations were given at the Buffalo Dental School, an ideal place for the purpose ; exhibits by manufacturers of and dealers in dental and kindred supplies were made in rooms set apart for that object in the principal hotel ; and outings were enjoyed by members of the Association not only, but also by the ladies who, through the courtesy of the wives and daughters of members resident in the city, were shown Buffalo and "the Falls," and some of all that in them is. Judging by the "small talk" of the hotel lobby the meeting was a success, and those fortunate enough to be present took home with them many pleasant remembrances of their reception and entertainment at the hands of the local committee in charge.

DR. JOSEPH BARR McCASKEY.

The subject of this notice was the oldest as well as one of the best and most favorably known practitioners of Lancaster, Pa., where he died July 14th last, in his sixty-sixth year, his failing health dating from a slight stroke of paralysis three years before.

Dr. McCaskey came to Lancaster when about sixteen years of age, passed through its public and Boys' High School, and in '58 began the study of dentistry with Dr. William Whiteside. In '61 he went to Hanover, whence he returned three years later to Lancaster, where he continued in active practice till within a short time of his demise.

Dr. McCaskey was a man of decision, fine physique, force of character, great physical strength and endurance. Driving and hunting were his chief means of recreation, and to that end he possessed himself of the best of horses, dogs and guns.

He is survived by his wife and daughter, also two sons, Harry and Joseph B., the latter of whom continues the practice. He leaves also two brothers, Dr. J. P. McCaskey, of Lancaster, well known as one of Pennsylvania's foremost educators, and Gen. Wm. S. McCaskey, now of Denver, in command of the department of Colorado.

BOOKS.

A Manual of Mechanical Dentistry and Metallurgy. By Geo. W. Warren, A. M., D. D. S., Second edition, revised and in parts rewritten, with one hundred and seventy-nine illustrations. Philadelphia: P. Blackiston's & Son.

There was a demand for a new edition of this little work and to that end the text has been revised in accordance with present day technic, the size increased sufficiently to allow the incorporation of much new material, its scope broadened but without materially changing its form. Care has been taken to make it sound and conservative as a guide for the student. Obsolete methods have been eliminated, and the dimensions kept within reasonable bounds. It has 257 pages and costs two dollars.

Transactions of the Fourth International Dental Congress. Edited by Drs. Kirk, Litch and Endelman. Vol. I. Philadelphia. Press of the *Dental Cosmos.*

A handsome volumn of 381 pages of the doings at St. Louis a year ago. The mass of its contents has been made common property within the last twelve months through its publication in dental periodicals; but its value is greatly enhanced now that it is included in a single cover. The men who have the editorial work in hand are in the habit of bringing things to pass, hence there is solid foundation for the belief that the second and third volumns will speedily follow that in hand.

WIT AND HUMOR?

" My customer had a tea party at his home last week and during the evening cut nineteen holes in Dunphey, and nine in Doyle with your 057 knife. Although one of Doyle's gashes was nine inches long, and one of Dunphey's reached his liver, no complaints were made; the knife cut slick and smooth and still retains its keen edge and sharp point."

The reverend gentleman suggested that the frail molar be treated as kindly as possible, whereupon the doctor replied: "Yes, Sir; with distinguished consideration." "And also," quickly added the patient, "a little cement."

"Good morning, Brown; warm day!"

"Not in my case."

"How so?"

"Got cold tongue across the table for breakfast; cold shoulder from my next door neighbor as I came down the steps, and cold feet in that puddle of water on the far corner. No; I can't say that it is a 'warm day'."

In making the trip from the cottage over a wet walk to the dock, the lady lost her feet and forthwith sat down hard, breaking off as a partial result of the mishap an upper lateral incisor.

Later, holding the fragment in the palm of her hand, at the same time showing where it had come from, she asked the small boy: "What do you think of that?" On completing his examination he remarked in the phrase of the day: "Now, wouldn't that jar you!" "Jar me? That's what it did."

An ass bore relics. The crowd bowed down.
The ass thought himself the saint of the town.—*Life.*

A Denver man is said to have taken a leaf from the diary of Burbank, the seedless apple and pitless plum man of California. He is raising boneless chickens with all meat white. These be salad days, indeed.

"And then" said the teacher describing an encounter with a tramp, "I fainted."

"Wi' yer left or wi' yer right ma'am?" asked Johnny Jimfries, the pugilist's son.—*Diversion.*

Josh ordered roast lamb, and the waiter bellowed to the cook: "One lamb!"

"Great Scott, mister, I can't eat no hull lamb. Give me fried oysters instead."

"One fried Oyster," bawled the waiter.

"Well Methusaleh's ghost! Mister, one fried oyster ain't going to be enough, give me a dozen of 'em. Durn these city eatin' places."—*Independent.*

"If you want your soup strainers pruned, we will block them out in any pattern—lipticklers, fantails, billygoats or peacherinos."

"Haircuts of all kinds, from woolywillies to ring-around-roseys."

"Wash your ears without extra charge."—Ad from *Eddyville Tribune.*

This fellow ought to "clean" teeth.

THE
Dental Office and Laboratory
FOURTH SERIES

XIX. PHILADELPHIA, NOVEMBER, 1905. No. 6.

FULL LOWER DENTURE FAILURES, AND CAUSES FOR SAME, WITH SOME PRACTICAL OBSERVATIONS.

BY DR. J. A. HARTMAN, ALBION, N. Y.

[Read before the Rochester Dental Society, Oct. 10th, 1905.]

During an active practice of less than twenty-five years, I have had considerable experience, much of it, I doubt not, common to us all. I have had successes and failures. I have had success where I looked for failure, and failure where success seemed a foregone conclusion. I have been intensely gratified when success has come through the careful study of conditions; heart sick and sore just as often, when things have gone all wrong through ignorance, carelessness or other faults. I find that success and failure are relative terms. Much depends upon the point of view. There may be success where the patient claims failure, and failure where the dentist claims success, even if the patient seems to be satisfied.

I shall consider the causes of failure on the part of the dentist, in the making of a practical, usable, comfortable lower denture, and the failures, and the causes therefor, which we meet on the part of the patient. These causes of failure are included under the general heads of—

Imperfect, or faulty impressions;

Mal-articulation, on account of incorrect bites;

Careless and insufficient trimming of the plate;

Lapse of too much time between the extraction of the teeth and insertion of the plate;

Bad temper, and

Failure to promptly collect the fee.

On the part of the patient, failure comes from—

Neglect in promptly settling the bill;

Neglecting to return for the correction of impingement, or mal-occlusion;

Too great expectation from an artificial substitute;

Bad temper, and

Bad habits.

IN THE MATTER OF IMPERFECT IMPRESSIONS.

There is no more fruitful source of failure in lower dentures than the lack of a good impression. The harder and more difficult the task of securing a perfect impression, the less should we be satisfied with one that we are uncertain about. Every peculiarity of the muscular and membraneous conditions should be carefully noted, and all the steps in the taking of the impression and the making of the plate should be taken with these peculiarities in mind.

As a general rule plaster of paris is the material that will yield the best results, though a good modelling compound properly manipulated will sometimes be the best thing to use. The choice of the impression material must be largely a matter of individual judgment, as reference is had to peculiar cases. Not the least important part of impression taking is proper finger manipulation of the material after the tray is in place. Carefully supporting the tray I instruct patients to press the tongue towards the sides and the front of the lingual tray edges, and that having been done I press the material towards the ridge on the buccal and labial edges with thumb and fingers. This procedure is especially important when modelling compound is used, though it is my invariable custom, whatever the impression material. Then make a good hard model; fill in all the air holes, even the most minute, and by using a proper varnish make the model smooth as glass. Don't use it too soon; unless it is thoroughly set there will be a tendency to spread under pressure. When the patient returns, prepare the wax for the bite, and be so thorough in getting it that there shall be no

MAL-ARTICULATION.

Many failures must be laid to an imperfect bite. Our literature is full of instructions as to the proper taking of the bite, and many of them are most alluring; but whether we instruct our patients to apply the tongue to the roof of the mouth as far back as possible—and have a little quiet rehearsal before inserting the wax, carefully explaining the importance of this particular part of the operation, or whether we simply insert the wax and have the patient close the mouth upon it, doing so several times to make sure, or whatever we do to find the correct bite, none of the instructions given are universal, or apply in all cases. The only absolutely safe way to get the articulation is to take the bite in any way that seems best at the time; mount the teeth on a trial plate, and try it in the mouth. Sit down comfortably by the side of the chair, and talk to your patient on any subject that is interesting; an inquiry as to how certain teeth were lost, will usually elicit a detailed account of how *every* tooth was lost; this is an unfailing source of conversation, which though not particularly thrilling in its effects upon you, is at least interesting to the patient, and serves the purpose as well as any other subject. Watch the teeth in their relation to their opposites, while the patient is talking, laughing, or in any other usual movements. Where alteration is needed, make it and continue the sitting until perfectly satisfied. This requires a good deal of time and much patience, but when faithfully carried out will yield rich results. "Art and science have their meeting point in Method" said Bulwer Lytton, and with a method of this kind in use, we are justified in expecting good results, provided the same care and patience are used in the

TRIMMING AND FINISH OF THE PLATE.

More than one lower denture has been laid upon the upper shelf of the pantry, or has been deposited within the depths of an old fashioned sugar bowl, to await the resurrection of the just, because the plate was not properly finished. Most of the time the flanges, or rims, are left too long. They ride upon the tissues of the part of the mouth with which they come in contact, like a buoy at sea with the tide. In talking, the tongue displaces a plate like this, and in the act of mastication the buccinator muscles lift it up, and soon the movement, and the pressure upon it, cause the rims to cut their way into the soft parts, and an almost unbearable abrasion, or sore results, so that the plate is removed and laid aside, in many cases never to be tried again, because "it don't fit."

Some patients will endure this kind of annoyance for a while, and then return for relief, but most of them condemn the work and the worker in unmitigated terms, and refuse to be further tortured. All this can be avoided by trimming the plate before dismissing the patient, so that the edges do not bear on the soft parts, and by having it rest squarely upon the ridge without impinging upon the muscles at the root of the tongue, or upon the attachments upon either buccal side. In many cases the muscular tissues and soft parts are raised when the tongue is raised, and extend above the ridge ; this condition must be well looked to, so that the plate may be adjusted by proper trimming until it is not lifted out of place when in use. All the edges of the plate should be well rounded and smooth. On the buccal and lingual surfaces concavities for the sides of the tongue, and the folds of the cheek are found to materially assist in retention, and add to the comfort of the patient.

"TRYING IN."

The finished plate should be tried in the mouth, and attentention should be given to the way it keeps its place, or fails to to do so. Putting it in place, and using a sprinkling of gum tragacanth, powdered, to cause it to slightly adhere to the ridge, then removing the hands and watching it, will at once reveal its shortcomings if it has any. If it rises of its own accord, press it down again, and take the corners of the mouth with both hands, and gently pull up on them ; if the plate lifts with the pull, the flanges, or rims are too long, and are resting upon the muscles of the cheek, or the integuments of the lip. The outer rims should then be filed down until the plate stays in place. Then have the patient raise the tongue towards the roof of the mouth ; if the plate becomes displaced again, the inner rim needs trimming. File the inner rim then until the plate stays in place, even when the tongue is raised and the cheeks are manipulated. After which give it the final polishing and let it go. Instruct the patient not to endure any unnecessary annoyance, but to return promptly for relief if needed.

Another cause of failure is

TOO MUCH DELAY BETWEEN THE EXTRACTION OF THE TEETH AND THE INSERTION OF THE PLATE.

Many dentists are advising patients to wait from three to six months for complete absorption of the alveolus, before taking the impression, and many patients think no harm can result if they supplement this advice by waiting a year or two. There is no greater cause for dissatisfaction than this unreasonable delay. In most cases absorption is rapid; the maxillary ridge is much reduced, and it gets into the habit of absorbing or of shrinking away, probably on account of the lack of use or exercise. Contour of the face and the natural expression are lost. The lower jaw reaches downward and forward in its efforts to touch something, thus stretching the muscles which normally hold the condyles in place, and causing a prognathous condition; the art of proper masticatory movement is lost and is most difficult to restore. When the plate is finally inserted, conditions are met which are very trying. The patient and all the cousins, sisters and aunts, accustomed to the appearance of the face as last seen, begin to criticize, and point out the strange, strained look about the mouth. The bite is uncertain and seldom in the same place, and the effort to learn to masticate food is usually the labor of weeks.

To prevent all this, and thus avoid one pregnant cause of trouble, educate the people to have plates made immediately after extraction, that is to say, within a week. The maxilla is then nearly normal; a good ridge is present; there has been no change of facial expression to speak of; the muscles and integuments are all in place, and the closure is yet the same. The denture, if made immediately will naturally fall into the place made vacant by the extraction of the teeth, and will not be an annoyance, because the mouth is no more crowded than it was before extraction. Let this first plate be worn from four to eight months, or as long as possible, then make it over. I meet with no serious objection on the score of the cost of the double operation, and have very pleasant results indeed. Someone has said that "temporary lower plates are the success of the permanent," and I find it so.

Another cause for the failure of a lower plate on the part of the dentist is

BAD TEMPER.

Many a good dentist has lost patients by the loss of patience. When the patient returns with a complaint, immediate, courteous and interested attention should be given, and careful examination of the plate and its environments should be made. This may lead to the discovery of the trouble, and of course the cause should at once be removed. Some patients are very unreasonable, however, and begin their account of trouble in a way that we are very apt to resent, and if we do, we are apt to say one or two sharp things in return and the battle is on. After that there is no hope for an amicable arrangement, and even if the cause of complaint is removed, the rankling recollection of the loss of temper remains, and the plate will never "fit." All we can do from thence forward is to wish that the patient may die early.

When, however, all has been conscientiously and courteously done that is possible, and the patient informed as to the need of personal and persistent effort in the matter of learning to wear the appliance, general results must be politely left to the future. There should therefore be no display of petulance on the part of the operator, but a continuance of good will and a pleasant demeanor ; good results should certainly follow.

The last cause for failure I shall call your attention to is the

NEGLECT TO PROMPTLY COLLECT THE FEE.

Plates that are paid for generally fit, all things being equal, especially when methods like these described are used. Plates that are not paid for will need all kinds of attention, all the time the bill is unpaid, and will almost certainly have to be made over free of charge, before final settlement can be secured. Therefore promptly collect fees, and avoid this cause of failure.

This leads me to the other side of my subject, the

CAUSES OF FAILURE OF LOWER DENTURES ON THE PART OF THE PATIENT.

1st. Neglect to pay promptly for the work. I put this first among the causes on the part of the patient, because I have yet to find a patient who is not easily satisfied after the bill is paid, unless belonging to a class I shall speak of later. Those who are slow to pay, as I said before, always find the most fault, and are the most difficult to deal with.

2nd. Neglecting to return to the office when anything is wrong. Care should be taken to be sure to have the patient return within one week for examination and final adjustment. This plan has the advantage of affording another chance to inspect the work, and of keeping the patient serene.

3rd. Expecting too much from a lower plate. Some expect the plate to remain as fixedly in place as the natural teeth, and when they find that the plate moves, they grow impatient, display bad temper, and finally refuse to wear the plate, no matter how carefully everything is explained and how suave and courteous the dentist is. "This kind can come forth by nothing but by prayer and fasting."

4th. Bad habits. The habit of lifting the plate with the tongue, and playing with it, constantly moving it back and forth, or from side to side in the mouth, will make of any plate a failure as far as its usefulness for mastication of food is concerned. It becomes endowed with a kind of life, and manifests a will of its own—refusing to remain in one place, so that it cannot be used for any purpose save as a plaything. Old people are the most apt to fall into this habit, and if I wanted to retain the good will of such an one, I would decline to make a second plate if by accident or otherwise the first was put out of commission, knowing that it would be time and talent wasted to expect success.

In closing, allow me to return for a moment to the subject of unpaid accounts, and quote a little poem I found in several of our journals, and which you have all doubtless seen, but which is worth quoting again:

TO HIS DELINQUENT PATIENT.

If I should die to-night—
And you should come to my cold corpse and say,
Weeping and heart-sick o'er my lifeless clay;
If I should die to-night—
And you should come in deepest grief and woe,
And say "Here's that ten dollars that I owe,"
I might arise in my great white cravat
And say, "What's that?"

If I should die to-night—
And you should come before my corpse and kneel,
Clasping my bier to show the grief you feel;
I say, if I should die to-night—
And you should come to me, and there and then
Just even hint 'bout paying me that ten,
I might arise awhile—but I'd drop dead again.

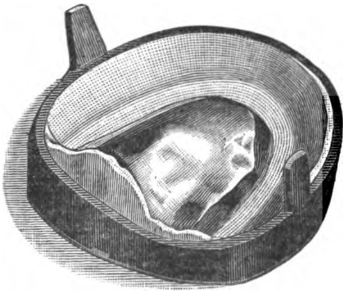
FLASKING AND PACKING RUBBER DENTURES—THE "OPTIMUS" METHOD.

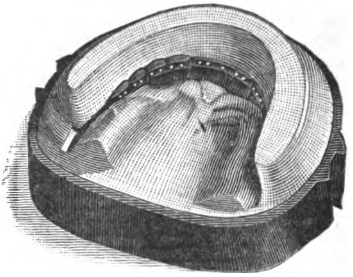
BY DR. H. S. MILLER, ROCHESTER, N. Y.

I herein give you a description of the method of flasking and packing a case for a rubber denture according to my method, which I call the "Optimus," believing it to be the best. Instead of investing the teeth as in the old style, with the teeth imbedded in the upper part of flask, and cast ot the mouth in the lower part, I reverse this plan and firmly invest both teeth and model in the lower part of flask, cutting no gates in the anterior part of the mould and but slight gateage in the rear. By this means I am certain that if my articulation was correct before investment, there will be no chance for any change.

In the old method, if for any reason the flask is not closed exactly as it was when the investment was completed, it necessitates grinding the teeth in order to overcome the defect in closing the flask. I think this explains why there is needed so much grinding to restore articulation, which was perfect prior to flasking the case.

In my method, I warm the flask slightly in order to soften the wax to be removed. After removing what one can readily, I heat water to boiling point, and with an old coffee pot, or any vessel with a spout, pour this hot water into the flask and around the teeth, which removes all trace of wax; then placing it over the flame I heat flask and contents sufficiently to pack the rubber, placing the pink rubber around the teeth, or whereever wanted, where it remains ; there being no gateage there is no escape for it, and it will be found just where originally placed, with no fear of black rubber showing in spots through the exposed pink, much to the dentist's discomfiture. By leaving the pins in teeth exposed this method enables one to pack the black, or other colored, rubber around them, making a firmer piece. After packing the mould approximately full, I lay a piece of the cloth in which the sheeted rubber comes, over the rubber and press the flask home, after which I separate and remove cloth, which discovers whether too much or too little rubber has been used for the piece, when one should be governed accord-


B


A

ingly. To pack according to my plan necessitates a deep flask, which permits of thick bulk of plaster to firmly hold the teeth in place.

In the accompanying cut "A" represents the lower part of the "Optimus" flask, containing the model and teeth in their proper relatio none to the other; "B" represents the upper part of the flask, which constitutes the lingual portion of the finished plate. By varnishing this surface, and burnishing a plate of block tin rolled to about No. 30 standard gauge upon it, very little polishing will be needed after vulcanization.

Recapitulation: Invest teeth in wax, and model of jaw in the lower part of flask, backing teeth with plaster as thickly as possible. Bevel plaster in order to separate flask; varnish with separating fluid, placing upper on lower part of flask; fill with plaster; separate flask; remove wax; pack. It is well to remove varnish after separating flask the first time, to prevent the two parts sticking together after heating. In the "Optimus" flask, holes will be found in lower part of flask to permit of escape of steam. If other flasks are used, it is necessary to drill a hole through the plaster at rear end of flask to effect this result or the plaster will blow out of the flask when heated over flame.

OUR PROFESSION—ITS STATUS AND FUTURE.

By Dr. Clint. W. La Salle, Rochester, N. Y.

[Read Before the 7th District (N. Y.) Dental Society.]

As a profession dentistry is less than two centuries old; in its earlier days it was practiced by men who had little beyond mechanical ability to recommend them. The men who contributed any notable influence to the advancement of dentistry in the close of the 18th, and beginning of the 19th centuries, were men of considerable culture, and well versed in the science of their time.

With the establishment of the first dental college in the United States, dentistry received its first impulse as a profession, dental knowledge was imparted in a systematic manner.

The time is in the recollection of many yet alive when operative measures consisted of filling teeth with gold, amalgam, or gutta percha; when pulpitis prognosed extraction and the insertion of a plate, and when wholesale extraction was performed as a cure for dental neuralgia. The strides made in the last twenty-five years in prothesis and therapeutics, let alone surgery, should place dentistry high in public opinion as a learned profession.

Deterents to this consummation are easily found. The commercialism characteristic of the last three decades has served to cause the impression that dental services are purchasable by the yard, so to speak. Many men of integrity prefer for various reasons to stand aloof from ethical organizations, and fail to contribute their share to the advancement of dental science. At the same time they profit by the discoveries and improvements disclosed in dental meetings and in the essays and discussions as published in our periodicals.

In comparatively recent years the pactice obtained, in a measure at least, of calling a colleague a competitor, and I believe the competitive spirit was often present, though not so often expressed. Professedly ethical men have appeared in court as expert witnesses against men of high ethical standing, and have influenced public opinion in an undesirable way. The fact that individuals can attend a reputable dental college, graduate, and engage in "commercial" practice has its influence. Certain of the public needing dental services, get the worst of the bargain. Ignorant of the difference between regular and irregular practitioners they assume all to be alike, and the regular suffers as a consequence. This phase of the question, and others, amply prove that dentistry does not occupy its rightful place as a learned profession.

In such measure as we hold public confidence, in just such measure can we expect appreciation of expert dental services, and obedience to our directions in regard to the care of the oral cavity.

As a profession dentistry has yet some steps to make before it becomes in the eyes of the public, a profession of equal importance with medicine, for example. This is not a complaint against the fact that a large per centage of the public patronize these commercial dental emporiums, and that we don't possess the patronage of the entire public; but that through various causes a certain percentage suffer through misconception of our mission and intentions.

THE FUTURE.

As to the future of dentistry, it is my belief that the dentist will be a college bred man.

The advances in dentistry are taking place so rapidly and embrace so much knowledge outside the strict domain of practical dentistry that the man of ordinary education is sometimes badly put to it to possess more than an emiprical knowledge of the agent he uses. On the other hand a man fresh from a course of preparatory study in college brings a mind well prepared to grasp many problems difficult to one bereft of such preparation. Further, this preparatory education enables one to contribute much to the advancement of his profession when such an education is combined with practical skill. There is no doubt that if such preparation were required there are many who would think twice before spending the time necessary to enter a profession where "money is made easily," and one evil would be lessened in large measure.

It cannot be gainsaid that as time goes on the duties devolving upon us will be heavier—that the general knowledge required will be greater, and in consequence the preliminary education will be broad and complete. When that time arrives at full fruition we shall see the ranks of the profession filled with men who have entered them because they have recognized that in the great scheme of things no man exists for himself alone, but for his brother man as well. Men will then enter the profession because they firmly believe that there they can best serve their earthly mission—because the service of humanity is more noble and satisfactory than the pursuit of the dollar.

I don't attempt to say whether the dentist of the future will cover all branches of our calling or whether it will combine also specialists in therapeutics ; in surgery ; in prothesis. But I do believe that the dentistry of the future will be a structure toward the perfection of which we should be proud to contribute our moity of help. It will be a profession in itself, not a specialty of any other—it is already too large for that—a profession to be a member of which should be honor enough for the life of any man.

DISCUSSION.

DR. W. W. BELCHER :

I think most of us outgrow our diplomas. When I first got mine I put it in a tin can, and I felt proud of it. I remember an address by a dentist who advised the boys to put their diplomas upon the wall, where they could see them ; and when they got in difficulty and the day was warm, get inspiration. Perhaps it is a sad thing when we outgrow beliefs that ours is not among the greatest of professions. There is no man who has made a successful dentist, as far as dollars are concerned, who could not have done better at something else—even life insurance. There is no money in working with one's fingers. The man who has a store can go away for a month's vacation; the expenses are being paid during his absence. The dentist who goes away for a month has $40.00 of office rent to meet; he comes back and dare not look the gas meter in the face for fear it has been playing tricks on him. Most of us, if we had gone into any other business would be seeing the other fellow work. At the end of twenty years the dentist is still working with his fingers. Perhaps he gathers in a few dollars over and above his living, puts them into the bank, invests them in Wall Street, in mining stocks, or in some business he is not acquainted with; and he might better have given them to the poor. Then he comes back, crawls into his shell and—fills more teeth.

The standard of the profession is fully as high as it deserves. We do many things that are not to the up-building of the profession. We give away advice, medicine, examinations, treatments, and sometimes throw in "cleaning." The public does not value what it gets for nothing. I know of but one or two dentists here who write prescriptions and charge for them. If we prescribe for a patient and do not charge, what is the impression? Simply that it is worth the cost. A few months ago a professional friend sent to me a patient of another dentist, one who had an abcessed tooth. He came in the evening; I opened up the tooth; the gentleman had a quiet evening. This professional friend saw me a few days later and said: "I sent you a patient the other day; what did you charge him fifty cents for? He told me how cleverly you treated the tooth,—that you knew exactly what to do; but he laughed at fifty cents, 'did it at night too.' "If I had done an operation like that I would have charged five dollars for it." I merely said, "You will never hear of my charging fifty cents for an operation like that again. Send me another."

I think that ours is a narrow profession; we grow narrow; we live too much in the office. In the country a man does not associate with his neighbor; in the city, a man does not fraternize with any but dentists. When we get together to talk at all we talk shop; we should talk of something else,—politics, religion, people, things.

And then most of a dentist's patients believe him the best in the place, and after awhile he gets to thinking that perhaps this is so—that he is a little tin god on wheels. Sometimes he gets a calling down from the patient that does him good.

A year or so ago I had a crusty maid for a patient. She had a sore tooth and came to me for advice. I gave her a prescription, and added that she should take also a vigorous cathartic. She came again, the tooth was still sore. "Did you get that prescription filled?" "No." "Did you take the cathartic?" "No." "Why didn't you?" "I didn't think it would do any good." "What do you expect now?" "I expect you to take the soreness out of this tooth." "Not I. You have got to go home and do as I first told you." "Do all your patients do that?" "All who are my patients do just as I tell them." "All your patients do that?" "Yes; all who come to me believe that I know more about dentistry than the man who wrote the book." "Well, I don't blame you for being a little stuck on yourself."

Mr. C. H. Ward:

Not being a member of the profession, I do not feel competent to criticise specific points in dentistry; but a word or two from the outsider's standpoint may apply. I have noticed throughout this meeting the high character of the papers, and the clean-cut, hearty quality of the discussion; discussion intelligently conducted and simply because each took the trouble to know beforehand what he was going to talk about.

While assurances are valuable, there are a few points in rebuttal of the discussion of this last paper. Dr. Belcher declares against the one man business; the man who uses tools; who is trying to earn his living with tools, instead of sitting back in the office chair and bossing others in the direction of numerous and different departments. I have tried both schemes to a limited extent, and I should like to impress on every dentist who feels the limitations of his profession, the fact, the wonderful fact, the ugly fact, that the way of the business man is not easy; in other words, that in this country for the last twenty-five or thirty years 97% of the men who have gone into business have failed. Over against this the man who worked with his hands, with his tools—unless he has put a chattel mortgage on them—has made sure of his living.

In regard to the economic question, you cannot advertise. I think that possibly a dignified system of advertising might be right, but it is ruled out. But you can do this: It is a fact in psychology that the opposition to any point is brought out and firmly impressed on the man only when he is arguing—when he can answer you. You get into a talk about religion, politics, or something of that kind. So long as the opponent is allowed to reply his mind is so taken up with rebuttal that you cannot convince him. It is a truism that nobody is convinced in an argument. The dental profession is unique in one particular, and I mention this briefly to show you that you have an opportunity that is absolutely golden. You get representatives of various walks of life, of all degrees of intelligence, and if you can influence them, what you say will spread and spread until you have impressed upon the public mind exactly what you most wish to. You have your patient in the chair and a rubber dam in his mouth; he is entirely receptive; he cannot talk back. Tell him stories; explain briefly, without names, the doings of the quack—the fellow who is not a real dentist; why he should not be allowed to practice. Tell them that these other good young men who have saved up their dollars, and gone to school, and spent five or six thousand dollars learning how to do things the way you and others of the elect have long done, should not be competed with by men that have been gathered from the lower walks of life and elsewhere. Do this and "all other things shall be added unto you."

DR. J. H. BEEBEE:

I do not know that I have anything to say, excepting as to what Dr. La Salle said about a college education. I was one of those unfortunate individuals who received a college education. I say unfortunate, and I mean it. I do not believe that any man is improved for professional life, unless he is a clergyman, or a literary man, or a school teacher, by the ordinary classical education given in the colleges. One is apt to be taught, or it gets into him, that all he has got to do is to get through college, and that the world is waiting with open arms to give him a living. He will have to get that knocked out of him. Unless he is going to be a clergyman, or a literary man, or a school teacher, it is far better for him to spend the time on what has been called "bread and butter subjects." His mind is worked just as hard as it will be in spending at least three years in college, and three-fourths of that time learning the beauties of a language long dead. I do not believe in a college education for professional men outside the classes named.

RETENTION OF ARTIFICIAL DENTURES.

In the first paper in this series, published in the September, 1904 number of *The Dental Summary*, the subject of impressions was presented. The statement was made that "Plaster is the only material with which a perfect impression can be taken; and just in the ratio to the difficulties of the case, it is necessary to have a plaster impression." Also a method for taking impressions was described.

Should the impression be broken in removing from the mouth, which usually happens in partial and sometimes in full cases, the portions should be nicely adjusted and secured in place by melted wax and the impression be permitted to stand for fifteen or twenty minutes, or until it becomes hard and dry, when it is coated with a separating fluid. This part of the operation like every other portion is very important and must be intelligently done. The object is to give a smooth and glazed surface without an appreciable thickness being added to the impression, or a material that will attach itself to the cast which is to be formed.

LAC AND SANDARAC.

The best results are obtained by coating the maxillary surface of the impression with a solution of shellac (three ounces of gum to a pint of alcohol.) This varnish will penetrate the plaster of the impression, partially fill the pores and make a good line of demarcation to aid in cutting away the impression from the cast. In two or three minutes the shellaced surface is varnished with a solution of sandarac (three ounces to the pint of alcohol). Should the impression not have a well-glazed surface, in five minutes it should be given another coat of sandarac. If either the shellac or sandarac becomes too thick from exposure to the atmosphere, alcohol should be added until the required consistency is produced. The varnished surface is then moistened with water to facilitate the flowing of the plaster in filling the impression. The impression is filled with a suitably mixed plaster or a compound of plaster, and then placed, plaster side down upon a smooth surface.

There are several features of this description of forming a cast that require special consideration.

FOR DIES.

The purpose for which the cast is designed will determine the material with which it is to be made. Casts may be considered as belonging to three classes: First, those which will not be subjected to compression; second, those which will be subjected to compression, and third, those to withstand heat. The first class includes those casts used to form models for dies, orthodontia exhibits and similar uses. These casts should be formed of a material that is fine grained, forms a smooth surface and as free from expansion or contraction as possible. French's regular dental plaster has proven the most satisfactory. Two measures of plaster to one of water and stirred only until a smooth mix is obtained; a portion is then placed upon an elevated part of the impression and by jarring, caused to settle into all the depressions, the body of the cast is then built to the required form.

FOR VULCANITE AND CELLULOID.

The second class is designed for vulcanite and celluloid work. For this purpose many dentists have used a coarsely-ground slow-setting plaster. Most of these plasters expand more than French's regular dental plaster, but are somewhat less compressible. The best material with which to form these casts is Spence's plaster compound. This compound contains plaster and Portland cement and probably other materials. It is slow-setting and requires three and a quarter, to three and a half measures of the compound to one measure of water, and very hard spatulation and kneading to make a proper mix. When properly mixed it is of the consistency of stiff putty and is best packed into the impression with the fingers. As the compound does not form a very smooth surface, it is better to line the impression with a thin layer of French's plaster. This can easily be done as the Spence compound is so slow setting that there is ample time after preparing it to mix and place the French's plaster, after which the Spence compound is packed into it. Spence's compound requires about two hours to reach its maximum hardness; it then has four to six times the resistance of ordinary plaster. The material is somewhat softened by the vulcanization process, but only in a slight degree compared with plaster. It seems to be practically non-expanding. The writer is confident that too much stress has been laid upon the expansion of plaster as an explanation for the warpage of vulcanite dentures. He is satisfied that the warpage is due to the compressibility of the cast and as the result of too great and uneven pressure used in packing the case.

FOR CAST-METAL.

The third class consists of those casts used for cast-metal bases. Plaster is a very poor conductor of heat, also shrinks badly and unevenly when subjected to a high temperature; therefore, it is necessary to incorporate with the plaster such substances as will overcome these properties. Marble dust or sand very well accomplishes these requirements. They should be mixed in the ratio of two-fifths plaster and three-fifths marble dust or sand. These mixtures will require much less water to produce the proper consistency than pure plaster. There are many investing compounds upon the market, some of which are very excellent for making this class of casts. Because of the comparatively small portion of plaster contained in these mixtures, they should be mixed somewhat stiffer than the pure plaster.

Casts for partial cases of the second class may have the teeth strengthened by inserting into the soft Spence compound, three-fourth inch brads. This is especially desirable for those teeth upon which clasps are to be formed.

AS BETWEEN PLASTER AND WATER.

Undoubtedly there is a proper ratio between the water and plaster to obtain the maximum strength and permanency of form; also stirring after the crystallization begins, causes expansion and probably decreases the strength.

The operator should thoroughly appreciate the amount ot compressive force the brand of plaster he is using will resist; also the power of the screw with which he closes the flask.

French's regular dental plaster will show an appreciable compression when two hundred and fifty pounds are placed upon a circular surface one-half inch in diameter, or a surface equal to the occlusal surface of a molar tooth, and one thousand pounds will compress the plaster about one-thirty-second part of an inch. When we consider that five or six thousand pounds may be unevenly applied upon the surface of a denture while closing the flask, it is easy to recognize why many vulcanite dentures are warped so that they rock, or the teeth are too long upon one side and require grinding.

TO ESTIMATE PRESSURE.

The pressure that is being used in closing the flask can be very easily estimated, because the screw is a combination of the wedge and lever, and its power is found by multiplying the circumference described by the lever by the pitch of the screw and subtracting one-fifth for friction, which will be a very liberal allowance. Thus, it one pound of power is applied to the lever four inches from the center of the screw, the circumference would be twenty-five plus inches, which is multiplied by the pitch of the screw. There will probably be ten threads to the inch, or one-tenth pitch; after deducting one-fifth for friction we will have two hundred pounds of force for each pound of power.

It must be apparent to all that a perfect impression and a properly-constructed cast intelligently used are absolutely essential to the retention of an artificial denture.—DR. G. H. WILSON, *Summary*.

THE FAUCIAL TONSIL A SOURCE OF BAD BREATH.

If your olfactory nerve is sensitive to odors, you doubtless have detected some coming from the mouths of your patients which are not pleasant. There are many people who go to a dentist simply because they have a bad breath, and again there are many who go to a doctor to have their stomachs treated because of a bad breath. There are odors coming from the mouth which do not originate in either the teeth or the stomach, but from the faucial tonsil. You are all more or less familiar with the location of the tonsil as it lies, one on either side, between the anterior and posterior arches of the soft palate.

The tonsil consists of an elevation of the mucous membrane representing fifteen or twenty orifices, which lead into crypts or recesses, in the walls of which are placed nodules of adenoid or lymphoid tissue. These nodules are enveloped in a less dense adenoid tissue which reaches the mucous surface. The surface is covered with a stratified squamous epithelium, and the subepithelial or mucous membrane proper may present rudimentary papillæ formed of adenoid tissue. The tonsil is bounded by a fibrous capsule. Into the crypts open the ducts of numerous mucous glands. With some persons the tonsils become enlarged at intervals, and during the process of enlargement these crypts are also enlarged and the depth increased. The epithelium of these ducts is shed into them, and particles of food are, by the movements of the throat, forced into the channels, and these substances, constantly warm and moist, rapidly decompose. The position of the tonsil is such that at each expiration this foul odor from the decomposing mass is carried out, and any person within range of that breath will detect it if his smelling power is normal. Highly flavored and perfumed mouth-washes, chewing-gum, or anything you please, will not kill this odor, for it will float on and above any of them. Let me advise you who have not paid particular attention to the tonsil to do it now.

Upon looking at a diseased tonsil you can readily see these little crypts, some in the form of a slight depression, others rather elongated, and in some of them you will notice a yellowish, caseous mass in the form of a ball just at the orifice. With a straight spoon-excavator inserted into the orific and beyond the mass, with the right movement you can dislodge and bring it forth for closer examination. If you mash it between the fingers you will get the genuine odor which will teach you not to be mistaken in the diagnosis of foul breath from diseased tonsils. In cases of this sort advise the patient to consult a specialist. He will treat these little crypts or possibly remove the tonsil bodily. The function of the tonsil is, first, to assist in deglutition by helping to moisten the bolus of food as it passes downward; second, as a lymph gland, of which we have many others in the body, for the manufacturing of white blood corpuscles. You see that its function is so light that the specialist will not take that into consideration if he sees fit to remove it. Ill results sometimes occur from hemorrhage and also from instruments in the hands of a careless operator. I can personally vouch for the statement that the complete removal absolutely cures foul breath caused by diseased faucial tonsils.

PULP EXTIRPATION.

I shall use my space this issue to send an afterword to the alumni regarding the use of cocaine hydrochlorate as an aid to immediate pulp extirpation.

Much has been said and written lately on the subject of arsenic versus cocaine for pulp removal, and it is not my intention to go into the merits or demerits of either drug, but rather to remind us all that there is the patient to be considered in these operations.

We cannot ignore the fact (however much we sometimes might like to) that we are operating on human beings capable of suffering. There is such a thing as becoming so enthusiastic over a method of operating that we disregard this important item.

There is no dental operation so much dreaded by the average person as that of "taking out a nerve," and if I can judge aright from the evidences at hand, this dread is greatly on the increase since the method of using cocaine for this purpose has become so generally used. There is scarcely a day goes by but some one asks if I "use that method," or some one comes with the statement that "I understand you do not always use it." I am quite certain that at least twenty-five families have come into my hands the past year because former dentists had "half murdered" them with this so-called painless method. At the present writing I have a gentleman in my care who has let his teeth go without attention until they are almost hopelessly ruined because one of our very best operators attempted to remove the pulp from an upper molar, using the cocaine method. The pain occasioned was so severe that the gentleman then and there decided to let all his teeth go until they troubled him severely and then have them all extracted.

The cocaine enthusiast will say this is an exceptional case, but from my personal observation, as well as the experience of many operators, I think such cases occur altogether too frequently.

I do not think, in performing operations on the teeth, we are ever justified in causing such severe pain that patients will forever dread the dental chair. I, for one, prefer to take a little more time, make a few extra sittings, if necessary, and avoid such results, and I find that patients appreciate and are willing to pay liberally for such treatment.

I do not wish to be understood as saying that the cocaine method cannot, under certain conditions, be successfully used, but I do think it is not a method for universal application, and simply wish to remind us that there is to this question a patient's side, which, after all, is the most important.—DR. ELGIN MAWHINNEY, *Northwestern*.

ORAL PROPHYLAXIS.

A very peculiar feature of the prophylactic treatment as elucidated by Dr. Smith is that the cleansing or rubbing of the teeth must be done by hand. "No power polishers should ever be used." For this positive statement, so often repeated in various articles, no reason has ever been vouchsafed.

We utterly fail to comprehend why the work must be done by hand, for power-appliances like the dental engine using the same materials, wood and pumice, would certainly do most of it as well and much more quickly. It may be that the rapidly revolving polisher in the dental engine would cause too much abrasion of the enamel, and if so, it would only go to prove that hand polishing does the same only more slowly.

Claims Too Much.

The great objection to oral prophylaxis, as at present advocated, is that entirely too much is claimed for it by its originator. In order to magnify its importance it is first asserted that the average human mouth is in a constant state of "virulent infection" caused by germs that are invariably present.

That "septic matter is being conveyed directly into the gastro-intestinal tract, thence to the circulation, whence it may be deposited in any organ or tissue, and become the nucleus of serious chronic, systemic maladies."

That "sequences of the universal infection on the teeth in the oral cavity are, in our present civilization, affecting the health of humanity to a greater extent than any other one physical condition."

Also that "the greatest sanitary reform of the world is not the abolition of the village closet, but it lies in the hurculean task of revolutionizing the unsanitary and infectious condition of the human mouth. Contagion and disease from the latter are a thousandfold more subtle and dangerous than from the former." After this formidable presentation of the awful conditions prevailing in the mouth and on the teeth, it is claimed that oral prophylaxis is the panacea of the whole of them.

Why?

Let us see how much truth there is in all these statements. That germs are present in the mouth and on the teeth is certainly true, but they are also present in every portion of our bodies. We take them in with every breath and probably with every mouthful of food. Why do they not destroy us?

Simply for the reason that when our system is in a state of health, the conditions are not present which would enable them to carry on their destructive processes. In other words, the human body, when in a normal healthy condition, is immune to the action of such pathogenic micro-organisms as are constantly being introduced into it. Were it otherwise, the human race would soon become extinct.

What does an animal do when wounded? Does it not lick the part with its tongue and thus virtually coat it with germs that can be carried into the circulation through the open blood-vessels? Why does not infection follow, and why instead, does the wound more rapidly heal through this treatment?

If the human mouth is constantly in such a dangerous condition why is it that the extraction of teeth is so very seldom followed by auto-infection?

An open wound in an unclean mouth would seem to be the ideal condition for infection, but in the millions of cases of extraction under such conditions how often have we heard of septic sequences? While the mouth is the main portal of the human system and should be rigidly guarded to prevent any and all deleterious influences from gaining entrance to the organs within, it does not follow that it is the only or even the main source by which bodily infection may be accomplished. In fact, disease germs, and especially those of the more virulent type, are most generally taken into the circulation through abrasion of the epidermis and mucus membrane in various parts of the body.

A BETTER SHELTER.

Moreover, while the depressions in the crowns of the teeth and the interdental spaces afford an excellent habitat for micro-organisms, artificial appliances, and especially non-removable bridges which cannot be kept clean, afford better shelter for germs than the natural teeth.

Furthermore, the tongue with its surface furrows and innumerable palillæ offers a more inviting opportunity for the lodgment of pathogenic germs than the crowns of the teeth. And yet, Dr. Smith places little importance upon the cleansing of the tongue, saying that "tongue brushing is impractical and devoid of utility."

Why should we bestow such scrupulous care upon the teeth as a hygienic measure and at the same time neglect that equally important organ, the tongue.

Prophylaxis, to be efficient, should include the care of all organs involved and not only part of them. It is most unfortunate that Dr. Smith, in his strong advocacy of an advance movement along the lines of preservative or preventive treatment, should have misled himself into direct opposition to many well established scientific facts based upon thorough and original investigation.

ITS CHARACTER ESTABLISHED.

The work of Miller of Berlin twenty years ago in establishing the true character of dental caries, and the verification of his deductions by the production of artificial caries in extracted teeth by simulating the conditions found in the mouth, is known and appreciated by dentists the world over.

When the artificial caries thus produced could not be distinguished from true caries under the microscope, it effectively proved that the true causes of the disease had been found.

In the face of this Dr. Smith declares: "To institute simulated or artificial decay in a tooth while it is out of its natural environment, as has frequently been done, is wholly unavailing as a matter of scientific investigation. All such processes are but artificial decomposition and are so unlike tooth decay in the mouth that true scientific research is not advanced by them."

CONTRADICTS HIMSELF.

Again, in his assertions concerning pyorrhea alveolaris Dr. Smith places himself in direct antagonism to generally accepted facts concerning this disease. Indeed he states that pyorrhea alveolaris is not a disease but an inflammation, and then cites one symptom of the condition, the flowing of pus, to prove that his statement must be correct. Unfortunately he contradicts himself, for when a tissue is in a condition of forming and exuding pus, it has already passed the state of inflammation, and pus formation is direct evidence of a diseased condition of the part.

LOCAL TREATMENT MERELY RETARDS.

Placing and keeping the mouth in a thoroughly clean condition has always been recognized as a most efficient means for controlling and retarding pyorrheal manifestations, but it will not eradicate the disease. Its undoubted constitutional origin places it beyond the possibility of cure by purely local treatment, no matter how thorough that treatment may be.

Dr. Smith scouts the idea of constitutional origin; believes that pyorrhea is caused by accretions upon the teeth, and assures his readers that prophylactic treatment is the sole remedy.

While commending the use of a tooth brush he vigorously attacks the "prophylactic" pattern and all others which have, like it, a curved surface to correspond to the outline of the dental arch.

He also objects to the generally accepted practice of brushing the teeth vertically. He says "a plain brush, with horizontal movement, is much better and much more efficacious."

DENTINAL SENSITIVENESS IS OF THE PULP.

One of the main points made by Dr. Smith in favor of prophylaxis is that the treatment markedly lessens the sensitivity of the dentine. He believes that he has seen this result, but his explanation of how it has been brought about is most unscientific and totally unacceptable. "Hypersensitiveness of dentine is a result of pericemental irritation far more than of pulp irritation. The external and most important life of the tooth, the percimental life, is markedly influenced by the irritative infection found at the necks of untreated teeth."

Accumulations of foreign matter, especially calcic accretions, do certainly irritate the soft tissues surrounding the teeth. The pericemental membrane may and often does become inflamed for at least a portion of its length, but at no point does it even come near the dentine. It could affect only the cementum to which it is attached and could not even remotely influence the deep-lying and well protected dentine.

Prophylaxis is hindered by such claims and not advanced by them. Proper care of the teeth cannot be too strongly endorsed or too conscientiously encouraged, but in its carrying out we should be guided by reason, giving it full credit for all it has done or may do, but not claiming for it that which it manifestly cannot do. Many a good cause has been harmed by the overzeal and extravagant claims of its enthusiastic advocates. —DR. S. H. GILFORD, *Stomatologist.*

HOLLOW GOLD INLAYS.

There are many methods of making fillings of the kind, many of which can be relied on to insure a fit in ordinary cases, but when the cavities become very extensive those methods that depend upon filling the inlay matrix with gold scraps and plate or mat gold are apt to suffer from warpage due to the shrinkage of the solder used; and, besides, solid gold inlays are objectionable because of their great metal bulk when used in vital teeth.

The hollow gold inlay has several points of merit, the most important of which is that, because its cover and matrix fit together perfectly at their edges, there can be no warpage that will affect the marginal fit of the filling. It is less expensive in metal because it is hollow, and for the same reason it is more comfortable because the hollow space is opposite the vital part of the tooth, which when filled with cement gives protection against thermal change and affords a good mechanical attachment for cement retention. Another feature is that the filling does not rest upon the bottom of the cavity, which favors a more perfect marginal adaptation.

Of all the methods now in use for smaller cavities, that of filling the matrix with crystal mat gold seems best. To make this filling hollow, place a piece of carbon the size of the opening desired into the bottom of the matrix and pack the mat gold around it to the desired contour and satisfy the gold with solder, after which invert the filling and, using a bur, cut away the matrix covering the carbon and remove it, thus leaving a hollow effect in the cavity side of the filling, the advantages of which are as mentioned previously. The gold inlay is now so firmly established that we await the event of a practical cast gold filling.—DR. C. N. THOMPSON, *Era.*

SACRIFICE OF TISSUE AND CONSEQUENT LOSS OF STRENGTH.

A great deal has been said upon pathological conditions following pulp destruction, but very little has been said about the serious loss of structural strength a tooth suffers from the dentist's efforts to gain access to the pulp-chamber and pulp-canals in order to properly cleanse and fill them. This is a very important matter. Take, for instance, the single-rooted anterior teeth ; although they are the least injured by pulp destruction, it is seldom, indeed, but that the cavity must be made twice as large as it would be if this complication did not exist, and this enlargement is made at the weakest portion of the tooth. When we pass to the bicuspids and to the molars, the removal of good tooth-tissue to gain access to the devitalized organ, and to remove it from a complicated series of tortuous canals, is at times enormous. * * * If the molar roots are nearly in line with the axis of the tooth, the pulp-canals are more readily found, and can be entered with much less loss of tooth strength. When, however, they are divergent, with nothing to indicate that they are so, we have to burrow this way and that to find where the pulp-canals are, removing in this search much valuable tooth-tissue not at all in our way. We know anatomically just where they ought to be, but, unfortunately, they are not always there. These are the cases in which we are apt to conclude that they are too small for our instruments to enter, and so, after slobbering around some antiseptic or mummifying agent, ignore them, to have the patient return some time later with a very sore tooth, to be told that they are suffering from a "cold." (?)

CALLED IT "MURDER."

Now, the question arises, What are we to do? Our old and much esteemed friend, Dr. Atkinson, at one time denounced pulp devitalization vigorously, calling it "murder." It was the thing then to cap all exposed pulps. The arsenic bottle, like the whiskey bottle in a prohibition town, was kept "on the sly." The general capping of exposed pulps in vogue then has been abandoned, and I venture to assert that it was not abandoned because it was generally successful. Many failures occurred, some due, no doubt, to injudicious selection of cases. Notwithstanding that many teeth so treated continued comfortable, and to all appearances survived and continued vital, the time quickly came when it was regarded as a hazardous and uncertain operation. About this time the advent of the germ theory and antisepsis seemed to put devitalized pulp treatment upon a firmer basis, and the arsenic bottle reappeared. I recall two interesting cases: the first, a child of about ten years with an approximal cavity of superior central, the pulp exposed and bleeding. The opening was quite small, and I capped it, covering the capping with temporal filling. This filling remained for several years, when I renewed it with gold, excavating the cavity much deeper; there was no evidence that there had ever been a pulp exposure, and every evidence that the tooth was vital. Many years after, in consequence of the patient's neglect, this became a devitalized tooth, and to reach the pulp-chamber through this same cavity I had to cut away a large amount of dentine. Another case, in an approximal cavity of a superior lateral the pulp was exposed the full length of the pulp-chamber, from its apex to very nearly where it entered the root. The patient was matured and one I could frequently see, and, as an experiment, I capped it, inserting a temporary filling. This was renewed some few years later with one of gold, malleted in. The cement which served as a capping was not disturbed. This tooth to all appearances continued vital when last observed, a score of years later. In carefully selecting cases pulp capping is a promising, although uncertain operation. Some pulps, like that in the case last cited, will bear, complacently, a great deal of rough usage; others, again, give up the ghost on the least provocation.

A MATTER OF DOUBT.

Then again, when a case presents itself with a pulp exposure, what do we know about that pulp? It may have suffered but little or not at all, or may be in the last throes of death. We cannot tell. The wisest of us, and the most experienced, can ouly guess, some more shrewdly than others, but it is guessing all the same. Thus we have, first, uncertainty as to the stamina of pulp; second, uncertainty in regard to its condition of health; and, third, uncertainty in the operation itself, for, with the best and the kindest intentions we may ourselves inadvertently and unwillingly, notwithstanding our skill and delicacy of touch, administer the *coup de grace*. The question was raised when this matter was before the profession years ago whether it was not best to take the risk, for if the worst came to the worst, it simply meant a dead pulp. But it was soon realized that a purposely devitalized tooth properly treated had a great deal better chance of remaining a comfortable tooth than one in which the pulp had died and probably assumed a pathological condition before receiving attention. We are handicapped by not being able to tell when the death of a pulp takes place. The text-books make it very plain, but in practice it is at times exceedingly dfficult to decide whether a tooth is vital or not.

I think that this paper is well timed, for just at present sound and healthy dentine is being cut away ruthlessly in "extension for prevention," "extension for convience." The unsightliness of masses of gold tended to hold this in check, but now that the advent of porcelain fillings has overcome this, it is being still more ruthlessly sacrificed. It is high time to call a halt, and * * * give pulp capping another trial as a means of conserving the structural strength of the teeth.—DR. W. H. TRUEMAN, *Brief.*

EFFECTS OF TEA.

Professional tea-tasters have long been known to suffer from nervous symptoms. Very early in the practice of their occupation the head-pressure symptoms of neurasthenia appear. Tremor also occurs early. While changes in the optic nerve have not been demonstrated beyond a doubt, still eye disorders have been observed in the pauper tea-drinkers of the United States and in the tea-tasters of Russia, indicating similar changes to those produced by tobacco and alcohol. The tea-cigaret habit has these effects. Bullard finds that tea has a cumulative effect. In his experience toxic effects are not produced by less than five cups daily. The symptoms manifested are those of nervous excitement resembling hysteria, at times almost amounting to fury; nervous dyspepsia; rapid irregular heart action; heart neuralgia; helmet-like sensation and tenderness along the spine. James Wood of Brooklyn, found that ten per cent. of those under treatment at the city hospitals exhibited similar symptoms. Of these sixty-nine per cent. were females, and every symptom ascribed by Bullard to tea was seen by Wood in his cases, who also found that the women manifested irregularities in menstruation of neurasthenic or hysterical type. He found that these symptoms were produced by one-half of the quantity of tea charged with these effects by Bullard. The *Lancet* several years ago, from an editorial analysis of the effects of tea-tippling, took the position that in no small degree nervous symptoms occuring in children during infancy were due to the practice of the mothers, both of the working and society class, indulging in the excessive use of tea, the excess being judged by its effects on the individual and not by the amount taken. Convulsions and resultant infantile paralysis were frequently noticed among the children of these tea-tipplers. Observations among the factory population and the workers in the clothing sweat-shops show that tea neurasthenia, presenting all the ordinary symptoms of nervous exhauston, is especially common. It is evident that tea produces a grave form of neurasthenia readily transmissible to descendants. In addition to its effects directly upon the nervous system, tea tends to check both stomach and bowel digestion, and this increases the self-poisoning which is so prominent a cause, consequence and aggravation of these nervous conditions.—DR. E. S. TALBOT, *Digest.*

TECHNIQUE OF OFFICE MANAGEMENT.

The haphazard method of charging paitients, usual with the dental profession as a body, does much to lower the standard of the profession and impair the earning capacity of its individual members. The maximum income of *our* most distinguished and celebrated practitioner is but one-fourth the monetary goal that is reached by the medical and legal practitioners.

This paper is a plea for the time charge. Not because I believe it would prove a panacea for all our troubles, but it would do much toward lessening the business worries of the most overworked and underpaid of professions.

When one adopts the time charge he must employ all the modern office appurtenances that are applicable to a profession. A well trained secretary is of the first importance. A simple and accurate method of bookkeeping, preferably a combination ot day-book and card system. Suitable filing cabinets for letters and cards. A copying-press for all outgoing letters. An inexpensive time stamp can be used in innumerable ways to advantage. A system of notifying patients to return at the proper time for examinations.

My secretary has the power of attorney and does all of the banking business. All moneys received are deposited and checks drawn for the office and personal expense against those deposits. A monthly trial balance is struck and must agree with the bank-book that is balanced on the last day of the month. Bills should be presented either monthly or on completion of services. It does not add to one's dignity or bank account to wait six months or a year.

An itemized account should never be given, but in the event of a request for one from a patient a reply should be sent that dentistry cannot be itemized like so much merchandise. The copies of the office methods that I will pass around will be self-explanatory in conjunction with the above.

The man who works on time may select four or five patients for each day and without haste do each operation according to his highest ideals without thought of fee. If he believes the greatest good can be done in cleansing teeth, then his greatest efforts will be along that line, and the money-return will be as great at the end of the day as if he had built in the largest of gold fillings.

If his hour is taken in consultation with, say, a case of malocclusion, then his charge must be as large as if his time had been employed in any other way.

In cases of pyorrhœa, when you feel each tooth would require one hour to scale properly and you have thirty-two teeth to treat, if your charge is ten dollars per hour your fee must be three hundred and twenty dollars for that cleansing, or you will be dishonest to yourself and your patient and your profession.—DR. F. L. STANTON, *Brief.*

EROSION.

Dental erosion is rather a peculiar condition, from the fact that in some instances it requires years to bring about any marked denudation of the structure, while in others the same destruction may be wrought in a few weeks or months. It is also peculiar because in many instances after advancing to a greater or less extent, the process ceases and no further destruction takes place thereafter. As to the cause, very many theories obtain regarding this. Considerable investigation has been made with a view to establishing the real factors in its etiology, but no definite conclusions have been arrived at, or at least accepted. It appears that the destruction is the result of the action of some corrosive substance, the nature of which is not fully understood. Personally, we believe the disease to be the result of an acidulated condition of the mucous secretions in the region of the teeth affected. Therapeutic treatment, either local or general, does not seem to apply to erosion. When the disease has advanced to any considerable extent, the depression should be so shaped that it will hold a suitable filling material. Formerly gold was used to best advantage in these cases, but at the present time nothing serves this purpose better than the carefully constructed inlay.—I. N. BROOMELL, *Brief.*

TOOTH-DECAY.

The stand which we have taken and will endeavor to maintain is, that tooth-substance is subject to the same pathological disturbances as any other anatomical appendage of the body—as the nails, hair, skin, etc. There is no reason why the teeth should be considered an exception to the general rules governing other portions of the human anatomy. They are greatly exposed to deleterious local influences, it is true, but that does not exempt them from the general biological and pathological laws of being.

It is absurd to claim that the decay of teeth cannot result from general ill health, or, at least, participate in the ill effects of some general disorder. And among such disorders, we wish to point out that gout and rheumatism are by no means uncommon. By the terms "gouty" and "rheumatic," however, we refer not so much to the acute swelling of joints, as to the chronic "aches and pains" commonly known as muscular rheumatism. There may be no apparent swelling of the parts, no tumefaction nor inflammation—simply the subjective expression, "pain," more or less.

It is generally admitted that such symptoms arise most frequently from the presence of an excess of waste urate salts, precipitated out of the blood and deposited in the nerve sheaths or between the muscle fibers, where they cause irritation. These urate salts have been retained in the system, owing often to carelessness in attending to the calls of nature to remove waste. Kidneys, liver and bowels finally become inactive, because of this ill treatment, and the patient's circulation becomes charged with waste debris that these organs have failed to remove. The debris most commonly retained in such cases, are waste tissue salts of the uric acid type.

Being in the colloid form and partly soluble, they are absorbable and removable, being deposited first in one place and then another. The teeth are not exempt from these deposits, nor are they always capable of resisting their irritant effects—tendency to decay.

If the patient, who presents himself to the dentist for treatment of "tooth-decay," has the "gouty" or "rheumatic" tendency previously alluded to, and wishes to be relieved of the danger of further decay, there is no reason why the dentist should not require his appearance periodically at the office for manipulative treatment in the way of oral prophylaxis, and at the same time give instructions as to the method of general treatment and observe its effects from time to time. The patient, if intelligent, readily appreciates the fact that this is the dentist's specialty, and will be glad to submit to his advice in the matter. Furthermore, the eliminative treatment is very simple to follow out, and the majority of patients will faithfully abide by the dentist's directions.—*Uric Acid Monthly.*

INSTITUTE OF DENTAL PEDAGOGICS.

The annual meeting will be held in the Fifth Avenue Hotel, New York, December 28th, 29th and 30th. The following subjects will be discussed :

Anesthesia, extraction, operative technic, prosthetic technic, crown and bridge technic, orthodonthia technic, porcelain technic, chemistry, anatomy and oral surgery ; teaching in the infirmary.

The main idea of the meeting will be "How should these subjects be presented to dental students ?"

WIT AND HUMOR?

We can sterilize his bottles, we can boil his little mug ;
We can bake his flannel bandages and disinfect the rug
That envelopes him when he partakes of medicated air,
But there's one impossibility that leaves us in despair—
And a not unjustifiable alarm you will allow—
To wit: we fear 'twould never do to sterilize the cow!

We are careful of his hours, we are thoughtful of his toys ;
We are mindful of his sorrows and judicious of his joys ;
We are prayerfully considerate of needful discipline,
Of our little "Mothers's Handbook" and the precepts writ therein ;
And we strive to render sterile all designed for mouth or tum,
But one frightful danger menaces—we cannot boil his thumb.
—*Harper's Magazine.*

"Paw, did Moses have the dyspepsia like what you have got ?"

"How on earth do I know ? What makes you ask such a question ?"

"Why [illegible] nday-school teacher says the Lord gave Moses tw[illegible]ets."—*San Francisco News-Letter.*

Mark Twain had occasion to use the word "dry dock."

"What is a dry dock, Mr. Clemens," asked the young lady.

"A thirsty physician."—*Boston Herald.*

"Laughing gas and vitalized air for extracting. Perfectly safe and harmless lady in attendance."—Advertisement in *Springfield Republican.*

"This is a case," said the man with the new set, "of China teeth *versus* China cup and saucer." "Yes," said the fellow at his elbow, when he heard the crack, "When Greek meets Greek."

Date Due
